

Instructions to Authors

Canadian Journal of Fisheries and Aquatic Sciences

Scope of the Journal and guidelines for papers

The Journal welcomes manuscripts reporting significant new knowledge and understanding of fisheries and aquatic sciences. Manuscripts may concern cells, organisms, populations, communities, ecosystems, or processes that affect aquatic systems. They may cover a range of disciplines including biology and ecology of marine and freshwater organisms, limnology, oceanography, physiology, toxicology, genetics, economics, disease, and management. Manuscripts are selected for publication according to the extent and significance of new knowledge or ideas presented. Preference will be given to manuscripts that emphasize understanding of observed phenomena and interpretation of experimental results.

We encourage papers that lead from clearly stated purpose or rationale, and from testable hypotheses, concepts, or questions, to identifiable conclusions or syntheses. Such papers may amplify, modify, question, or redirect accumulated knowledge embodied in contemporary perceptions of a particular state of aquatic sciences. **Rationale for the study and interpretation of the results should be set in a broad disciplinary or interdisciplinary context.** Methodological and modeling papers should include applications and provide verification of enhanced performance.

We continue to discourage papers that are essentially descriptive, except in emerging disciplines; have only site-specific or local applications (a certain year, place, taxon, chemical compound, etc.); confirm only previously established principles; or apply standard techniques without breaking new methodological ground. Studies that are clearly preliminary or fragmentary, or whose relevance to broader issues is not demonstrated, and interpretations solely of an unsupported speculative nature will not be entertained.

Manuscripts submitted should be as comprehensive as possible; if a single paper can not be produced, then closely related papers should be cross-referenced and submitted together.

Types of papers

The Journal considers the following types of contributions:

Articles — Studies of broad scope that are original contributions to science.

Perspectives — Syntheses, critical reviews, and reevaluations of current concepts and paradigms.

Discussions — Comment and Reply on subjects recently published in the Journal.

Rapid communications — New concepts, methodology, and topical or controversial subjects.

Guidelines for these contribution types are available from the Editorial Office's Web site (uoguelph.ca/~cjfas/).

Language

Papers must be clearly and concisely written in **good Eng-**

lish or French. Authors whose native language is not English or French should consult someone fluent in English or French prior to submission of the manuscript. Good writing improves the speed and effectiveness of review and publication.

Abstracts should be submitted in the language of the paper. They will be translated into the other official language by the Journal translator. However, authors able to submit abstracts in both fluent English and French are encouraged to do so.

Page charges

There are **no page charges** for publication in the *Canadian Journal of Fisheries and Aquatic Sciences*.

Purpose of these instructions

To **facilitate publication**, authors must check symbols, abbreviations, and technical terms for accuracy, consistency, and readability. NRC Research Press maintains the right to preserve the technical quality of the Journal. Authors are requested to refer to a recent issue of the Journal for details of layout, especially for tables and reference lists. **Manuscripts and illustrations must meet the requirements outlined below; otherwise, publication may be delayed.**

To submit

New manuscripts

Manuscripts can be submitted by either the Web or e-mail (cjfas@utoronto.ca). Web submission via **OSPREY** (Online Submission and Peer Review) is encouraged.

Via the Web

Authors may submit manuscripts at the **OSPREY** Online Submission and Peer Review site (pubs.nrc-cnrc.gc.ca/cjfas/osprey). **OSPREY** is best viewed in Netscape 7.0 or higher or Internet Explorer 6.0 or higher. During registration, authors choose a username/password. The security of manuscripts is protected by the username/password system. Authors may register at any time on the site, but should register only once. Those individuals who have submitted to or reviewed for the Journal in the past will have an existing profile in **OSPREY** and may access it by entering their e-mail address in the "Forgot Your Password" field on the Web site.

For technical support at any point during submission, contact Louis Lafleur (613-998-9432; louis.lafleur@nrc-cnrc.gc.ca) from 8:00 am to 4:00 pm EST.

A user manual with full instructions is available on the Web site.

Authors must submit at least a cover letter and manuscript; tables and figures may be included in the manuscript file, or may be uploaded separately. **OSPREY** accepts files in most

common text and graphics formats (see complete list of formats on the Web site).

Research Press is not currently accepting MS Word 12 documents (.docx extension). Please note that saving .docx documents to other formats (i.e., .doc, .rtf, or .txt) will likely lead to changes to or losses in formatting or other data. Authors saving .docx manuscripts to other formats are requested to check their manuscripts carefully before submission for any losses or other errors.

When first submitting a manuscript for peer review, low-resolution versions of figures should be uploaded to limit file size. When submitting, authors should be working at a computer where all of the relevant files for their paper are available. Submission of a typical manuscript requires about 10?minutes, but upload time depends on the speed of the Internet connection.

All correspondence about manuscripts submitted through **OSPREY** will be sent to the person listed as the corresponding author during submission. Correspondence is by e-mail.

Revised manuscripts

For revisions, the corresponding author will be contacted by e-mail and asked to submit a revision.

Accepted manuscripts

The author will be contacted to advise him or her of acceptance and asked to provide the final accepted manuscript and all associated files for tables, figures, and supplementary data via **OSPREY** or e-mail.

Text (including tables) should be provided in a word-processing format (any form of WordPerfect, Microsoft Word, or TeX is preferable, Windows or Macintosh platform). TeX macros for preparing accepted papers for submissions are available at <ftp.tex.ac.uk/tex-archive/macros/latex/contrib/nrc/>, <ftp.dante.de/tex-archive/macros/latex/contrib/nrc/>, and <ctan.tug.org/tex-archive/macros/latex/contrib/nrc/>.

To ensure the highest possible quality reproduction and printing of figures, authors should prepare figure files as follows.

- (i) Upload figure files separately from the manuscript.
- (ii) Ensure that the files are high resolution.
- (iii) Ensure that figures are in their original file format (i.e., PhotoShop, Adobe Illustrator, Excel, CorelDraw, SigmaPlot, etc.) rather than embedded in a Word document or converted to a derived format. However, if figures are in a format that NRC Research Press does not accept, high-quality high-resolution PostScript or PDF files are acceptable. Sending files in more than one format is fine; the publisher will use the format that will reproduce the best.
- (iv) Ensure that they are uploading the most recent, correct versions of the files.

Other information regarding submission

Cover letter

The corresponding author should send a cover letter with the submission that

- (i) states the main points and significance of the work;
- (ii) avows that all coauthors fully participated in and accept responsibility for the work;

- (iii) avows that the manuscript is not being considered for publication elsewhere;
- (iv) suggests potential referees;
- (v) identifies other manuscripts, including "extended abstracts", containing the same, similar, or related information, from which other manuscripts may be generated;
- (vi) includes the telephone and fax numbers, as well as e-mail and current mailing addresses, of all authors;
- (vii) explains any real or perceived conflicts of interest (see Ethics section, Conflict of interest and disclosure).

Copyright assignment or license

If the Editor agrees to consider a submitted manuscript for publication, the Editorial Office will request the return as soon as possible of copyright assignment and (or) license forms signed by all authors. Before a manuscript can be accepted for publication, all authors are required to complete a copyright assignment or license form assigning or licensing rights to NRC. Most authors will sign the assignment form, which transfers all rights to NRC. Employees of the government in Commonwealth countries will sign a license form that allows them to retain Crown copyright, and employees of the US government will sign a form agreeing to publication, since no US copyright exists. Copyright transfer forms are available from the Editor, in the first issue of the volume, or on the Web site of the Journal (pubs.nrc-cnrc.gc.ca/rp/rptemp/copyright_e.pdf).

Editorial process

Receipt of manuscripts

Once the Editor has decided to consider the manuscript for publication, the corresponding author of a submitted manuscript will receive a formal acknowledgement letter and will be requested by the Editorial Office to complete necessary forms as soon as possible. If the Editor has decided not to consider it for publication, then the corresponding author will be notified of this decision via e-mail.

The manuscript is read and examined for conformity to these *Instructions to Authors* by the technical editor. Failure to meet the criteria outlined may result in return of the manuscript for correction before evaluation.

Peer review/evaluation

Each manuscript is normally submitted to two referees for appraisal. However, the Editor will return unreviewed those manuscripts that do not fall within the Journal's scope or character, and those that exceed the Journal's guidelines for prior publication as "extended abstracts" (guidelines available from the Editorial Office's Web site at uoguelph.ca/~cjfas/). Papers submitted for inclusion in supplements are treated with the same rigor of review as articles in regular issues.

Responses to referees and revisions to manuscripts should normally be completed within 90 days. Manuscripts not returned within 90 days of receipt may be treated as new submissions unless the authors contact the Editorial Office.

Resubmitted manuscripts

Authors resubmitting a manuscript after previous rejection or withdrawal must indicate the manuscript number assigned to the previous submission in their cover letter. Resubmitted manuscripts are treated as new papers. Authors may submit

the new manuscript by e-mail or via **OSPREY**, along with a detailed, point-by-point reply to all issues raised during the previous evaluation.

Publication process

General

The Editorial Office checks all accepted manuscripts for conformation to the *Instructions to Authors* and to ensure that all necessary paperwork is present. Any areas that are identified as problematic will be addressed by the Editorial Office in consultation with the corresponding author. Once the Editorial Office has resolved any problems with the manuscript and the original signed Assignment of Copyright forms have been received from all authors, the manuscript is forwarded to NRC Research Press in Ottawa for publication. The papers are prepared for publication by a professional copy editor responsible for ensuring that the final printed work is consistent in form and style.

Correspondence with NRC Research Press

Once the paper has been accepted, all correspondence should be with NRC Research Press, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada (fax: 613-952-7656; e-mail: pubs@nrc-cnrc.gc.ca; URL: pubs.nrc-cnrc.gc.ca). NRC Research Press may make editorial changes as required, but will not make substantive changes in the content of a paper without consultation with the author and the Senior Editor.

Galley proofs

A galley proof, illustration proofs, the copy-edited manuscript, and a reprint order form are sent to the corresponding author. **Galley proofs must be checked very carefully, as they will not be proofread by NRC Research Press,** and must be returned within 48 hours of receipt. The proof stage is not the time to make extensive corrections, additions, or deletions, and the cost of changes introduced at the proof stage and deemed to be excessive will be charged to the author.

Reprints

If reprints are desired, the reprint order form must be filled out completely and returned with payment (cheque, credit card number, purchase order number, or journal voucher) together with the corrected proofs and manuscript. Orders submitted after the Journal has been printed are subject to considerably higher prices. **The Journal does not provide free reprints, and reprints are not mailed until a purchase order number or payment is received.**

Permission to reproduce copyright material

Whenever a manuscript contains material (tables, figures, charts, etc.) that has been previously published and, hence, is protected by copyright, it is the obligation of the author to secure **written permission from the holder of the copyright** to reproduce the material **for both the print and electronic formats**. These letters must accompany the submitted manuscript; otherwise, publication may be delayed. All material designated as "taken from ..." must be accompanied by a letter of permission. If the material is not to be reproduced exactly as in the original, it should be designated

as "modified from ...". In either case, the source of the material must be included in the reference list.

Permission to reprint material published in NRC journals

Requests for permission to reproduce or republish the paper, in whole or in part, should be sent to NRC Research Press, Roxanne Landriault (613-990-2254; fax: 613-952-7656; e-mail: roxanne.landriault@nrc-cnrc.gc.ca).

Ethics

General

The ethical standards expected of authors, referees, and editors are described in the NRC Research Press Publication Policy (published in the January 1996 issue of the *Canadian Journal of Fisheries and Aquatic Sciences*, on the Journal Web site at pubs.nrc-cnrc.gc.ca/cgi-bin/rp/rp2_cust_e?pubpolicy, or upon request).

Duplicate and prior publication

It has long been a policy of the *Canadian Journal of Fisheries and Aquatic Sciences* to not publish manuscripts that have been published elsewhere. The Editor considers a paper not eligible for publication if most of the content of the paper (i) is under consideration for publication or is published in a journal or book chapter; or (ii) is under consideration for publication or is published in a conference proceedings or a government publication, with a substantial circulation (distributed to 100 or more individuals over a wide area). Authors may place a draft of a submitted article on their Web site or their organization's server, provided that the draft is not amended once accepted for publication. We encourage authors to insert hyperlinks from preprints to the final published version on the NRC Research Press Web site (pubs.nrc-cnrc.gc.ca). Abstracts or extended abstracts related to conferences do not constitute prior publication. Extended abstracts are usually under 1000 words and do not include presentation of detailed tables and graphics of the results of the study. Further guidelines on extended abstracts are available from the Editorial Office's Web site (uoguelph.ca/~cjfas/).

Assurance of authorship

In the cover letter, the corresponding author must affirm that all of the authors have contributed substantially to the manuscript and approved the final submission.

Suggesting reviewers

Authors may suggest names of referees that may or may not be used, but the selection of the referees is at the discretion of the Editor. When suggesting referees, please provide full addresses, telephone and fax numbers, and e-mail if available.

Conflict of interest and disclosure

The Editor recognizes that authors and peer reviewers may have real or perceived conflicts of interest arising from intellectual, personal, or financial circumstances of their research. Submitted manuscripts should include full disclosure of funding sources for the research and the letter of transmission should include an explanation of any real or perceived conflicts of interest that may arise during the peer review process.

Failure to disclose such conflicts may lead to refusal of a submitted manuscript.

Photos of people

If a person pictured in a photo is identifiable, his or her permission is required to publish the photo. The person must be asked to sign a letter or form allowing NRC Research Press to publish the photo.

Photo manipulation

Authors should be aware that the Journal considers digital images to be data. Hence, digital images submitted should contain the same data as the original image captured. Any manipulation using graphical software should be identified in the methods, including both the name of the software and the techniques used to enhance or change the graphic in any way. Such a disclaimer ensures that the methods are repeatable and ensures the scientific integrity of the work. The removal of artefacts or any (nonintegral) data held in the image is discouraged.

Parts of the manuscript

Format and organization

The manuscript should be typewritten, **double-spaced**, on paper 21.5 × 28 cm (8.5 × 11 in. or ISO A4). Each page should be numbered, beginning with the title page. Continuous line numbers should also be included for the text. For material that is to be set in italics, use an italic font; do not underline. Use capital letters only when the letters or words should appear in capitals.

Organize the manuscript on the basis of the purpose or scope of the study as stated in the Introduction. Ensure that the title and headings are in harmony with the statement of purpose.

Before writing any of the manuscript, list tentative headings in as few ranks as possible. Rework them until they appear to allow logical development for the reader; usually, chronological order is not effective. The findings will be more readily appreciated if methods, findings, and discussion are given in separate sections.

Organize tables and figures to facilitate comparisons, grouping related data in as few tables and figures as feasible. As far as possible, make the tables and figures clear without reference to the text.

Begin sections and paragraphs with topic sentences containing generalizations that lead readily to the particulars. Giving a conclusion first and then supporting it not only improves readability but also facilitates assessment by other scientists. Failure to give the most newsworthy generalizations first is one of the most prominent shortcomings in the presentation of manuscripts.

Assure that everything in each section is relevant to the heading and that everything in each paragraph is relevant to the topic (opening) sentence.

Before writing any paragraphs, try writing the topic sentences for all of them and arranging these in appropriate order.

Title

Limit the title to what is documented in the manuscript. It is the key to the article and should clearly and concisely reveal what appears in the paper itself. The title serves two functions: (i) it allows the reader to judge whether the article is of

potential interest and (ii) it should provide enough information to permit the reader to judge the scope and potential importance of the article. Words in the title should convey a maximum amount of information and identify the nature of the research, organism used, and where appropriate, the technical approach (e.g., X-ray, chromatography, mathematical analysis). Titles should not begin with a numeral or introductory prepositions such as "On" or "Towards" or expressions such as "A contribution to ..." or "Investigations on ...". Good titles greatly assist scientists and librarians in using scientific literature and aid indexers in preparing titles for keyword indexes. Series titles should be avoided.

Title page

The title page should contain the following. (i) The full title of the paper. (ii) Authors listed in the order in which they are to appear at the head of the printed article. (iii) Affiliation and address (including e-mail address) for each author. This should reflect the affiliation and address at the time of the study. Indicate current affiliations and addresses (including e-mail addresses) that differ from those in the by-line in a footnote. (iv) Name, address, telephone number, fax number, and e-mail address of the author responsible for correspondence.

Authors' names

The Editor urges all authors to use full forenames rather than initials and (or) one forename.

Abstract

An abstract is required for every contribution and should contain accurate descriptive words that will draw the reader to the content. This is particularly important because contemporary alerting services and search engines will search this text. It should not be more than 175 words and should appear on a separate page. The concise abstract should present the paper content accurately and should supplement, not duplicate, the title in this respect. Authors able to submit abstracts in both fluent English and French are encouraged to do so. Abstracts submitted in one language will be translated into the other official language by the Journal translator. References should not be cited in the abstract unless they are absolutely essential, in which case full bibliographic information must be provided.

Like the title, the abstract enables readers to determine the paper's content and decide whether they need to read the entire paper. Begin the abstract with the main conclusion from the study, and support it with the relevant findings. Limit details of methods to those needed in understanding what was done and work them into statements of findings. Avoid using phrases such as "... is discussed" or "... was found"; be specific. As the abstract is often divorced from the main body of the paper by abstracting and indexing services and is the only part of a paper some readers ever see, it is important that it accurately reflect the paper's contents and be completely self-contained (i.e., any *essential* references) in a retrievable form (e.g., R.B. Deriso. 1980. Can. J. Fish. Aquat. Sci. **37**: 268–282).

Introduction

Limit the Introduction largely to the scope, purpose, and rationale of the study. Restrict the literature review and other background information to that needed in defining the problem

or setting the work in perspective. Try beginning with the purpose or scope of the work, defining the problem next, and adding guideposts to orient the reader. An introduction generally need not exceed 375–500 words.

Materials and methods

Materials and methods provides the framework for getting answers to the questions posed in the purpose of the work.

Limit the information on materials and methods to what is needed in judging whether the findings are valid. To facilitate assessment, give all the information in one section when possible. Refer to the literature concerning descriptions of equipment or techniques already published, detailing only adaptations. Often, it helps to begin statements on procedures with a phrase indicating the purpose, such as “To determine ... we ...”. If the section is long, consider using subheadings corresponding to headings for the findings.

Results

Limit the results to answers to the questions posed in the purpose of the work and condense them as comprehensively as possible. Give the findings as nearly as possible in the terms in which the observations or measurements were made so as to avoid confusion between facts and inferences. State noteworthy findings to be noted in each table and figure, and avoid restating in the text what is clear from the captions. Material supplementary to the text can be archived in the report literature or a recognized data depository and referenced in the text (see Supplementary material section).

Discussion

Limit the Discussion to giving the main contributions of the study and interpreting particular findings, comparing them with those of other workers. Emphasis should be maintained on synthesis and interpretation and exposition of broadly applicable generalizations and principles. If these are exceptions or unsettled points, note them and show how the findings agree or contrast with previously published work. Limit speculation to what can be supported with reasonable evidence. End the Discussion with a short summary of the significance of the work and conclusions drawn. If the Discussion is brief and straightforward, it can be combined with the Results section.

Acknowledgements

Acknowledgements should be written in the third person. We strongly urge authors to limit acknowledgments to those who contributed substantially to scientific and technical aspects of the paper, gave financial support, or improved the quality of the presentation. Avoid acknowledging those whose contribution was clerical only.

Footnotes

Footnotes to material in the text should not be used unless they are unavoidable, but their use is encouraged in tables. Where used in the text, footnotes should be cited in the manuscript by superscript Arabic numbers (except in the tables, see below) and should be numbered serially beginning with any that appear on the title page. Each footnote should be typed on the manuscript page upon which the reference is made; **footnotes should not be included in the list of references.**

Equations and list of symbols

Equations should be clearly typed; triple-spacing should be used if superscripts and (or) subscripts are involved. Superscripts and subscripts should be legible and carefully placed. Distinguish between lowercase *l* and the numeral *one*, and between capital *O* and the numeral *zero*. A letter or symbol should represent only one entity and be used consistently throughout the paper. Each variable must be defined in the text or in a **List of symbols** to appear after the reference list. Variables representing vectors, matrices, vector matrices, and tensors must be clearly identified. Numbers identifying equations must be in parentheses and placed flush with the **left margin**. In numbering, no distinction is made between mathematical and chemical equations.

References

General form

The author is responsible for verifying each reference against the original article. Each reference must be cited in the text using the surnames of the authors and the year, for example, (Walpole 1985) or Green and Brown (1990). Depending on the sentence construction, the names may or may not be in parentheses, but the year always is. If there are three or more authors, the citation should give the name of the first author followed by et al. (e.g., Green et al. 1991). If references occur that are not uniquely identified by the authors' names and year, use *a*, *b*, *c*, etc., after the year, for example, Green 1983a, 1983b; Green and Brown 1988a, 1988b, for the text citation and in the reference list.

Uniform reference locators (URLs) or digital object identifiers (DOIs) are useful in locating references on the Web, and authors are encouraged to include these; they should be added to the reference in the reference list (see example below).

Unpublished reports, private communications, and in-press references

References to unpublished data, manuscripts in preparation or submitted to other journals, progress reports, and unpublished papers given at annual meetings are not cited in the reference list but may be included as footnotes or in parentheses in the text, giving all authors' names and initials. For a private communication, year of communication should also be given (e.g., J.S. Jones (personal communication, 1999)). If consultants' reports or other documents of limited circulation must be cited, they should carry with them an availability statement explaining where the document can be obtained. If an unpublished book or article has been **accepted for publication**, include it in the reference list followed by the notation “In press”. Do not include volume and page number in an in-press reference, as these are subject to change before publication.

Presentation of the list

The **reference list** must be double-spaced and placed at the end of the text. References must be listed in alphabetical order according to the name of the first author and not numbered. References with the same first author are listed in the following order. (i) Papers with **one author only** are listed first in chronological order, beginning with the earliest paper. (ii) Papers with **dual authorship** follow and are listed in alphabetical order by the last name of the second author.

(iii) Papers with **three or more authors** appear after the dual-authored papers and are arranged chronologically.

General guidelines on references

References should be selected judiciously and be largely restricted to significant, published literature. References should follow the form used in current issues of the Journal. The names of serials are abbreviated in the form given in *Chemical Abstracts Service Source Index (CASSI)* (Chemical Abstracts Service, 2540 Orlentangy River Road, P.O. Box 3012, Columbus, OH 43210-0012, USA) or in *BIO-SIS Serial Sources* (BIOSIS, 2100 Arch Street, Philadelphia, PA 19103-1399, USA). In doubtful cases, authors should write the name of the serial in full. The Journal encourages the inclusion of issue numbers which should be placed in parentheses after the volume number. The following bibliographic citations illustrate the punctuation, style, and abbreviations for references.

Examples of references types, including electronic references

Journal article with DOI:

Newbury, M.G., and Ashworth, A.C. 2004. A fossil record of colonization and response of lacustrine fish populations to climate change. *Can. J. Fish. Aquat. Sci.* **61**(10): 1807–1816. doi:10.1139/F04-113.

Journal article with URL:

Newbury, M.G., and Ashworth, A.C. 2004. A fossil record of colonization and response of lacustrine fish populations to climate change. *Can. J. Fish. Aquat. Sci.* **61**(10): 1807–1816. Available from pubs.nrc-cnrc.gc.ca/cgi-bin/rp/rp2_abst_e?cjas_f04-113_61_ns_nf [accessed 28 October 2005].

Journal article available online only (with DOI):

van der Sanden, J.J., and Hoekman, D.H. 2005. Review of relationships between grey-tone co-occurrence, semivariance, and autocorrelation based image texture analysis approaches [online]. *Can. J. Remote Sens.* **31**(3): 207–213. doi:10.1139/rs03-011.

Entire issue of journal:

Gordon, D.C., Jr., and Hourston, A.S. (Editors). 1983. Proceedings of the Symposium on the Dynamics of Turbid Coastal Environments. *Can. J. Fish. Aquat. Sci.* **40**(Suppl. 1).

Report:

Sanders, W.W., Jr., and Elleby, H.A. 1970. Distribution of wheel loads in highway bridges. National Cooperative Highway Research Program Report 83, Transportation Research Board, National Research Council, Washington, D.C.

Book:

Williams, R.A. 1987. Communication systems analysis and design. Prentice-Hall, Inc., Englewood Cliffs, N.J.

Book in a series:

Scott, W.B., and Crossman, E.J. 1973. Freshwater fishes of Canada. *Bull. Fish. Res. Board Can.* No. 184.

Part of book:

Healey, M.C. 1980. The ecology of juvenile salmon in Georgia

Strait, British Columbia. *In* Salmonid ecosystems of the North Pacific. Edited by W.J. McNeil and D.C. Himsworth. Oregon State University Press, Corvallis, Oreg. pp. 203–229.

Paper in conference proceedings:

Kemp, A.L.W. 1969. Organic matter in the sediments of Lakes Ontario and Erie. *In* Proceedings of the 12th Conference on Great Lakes Research, Ann Arbor, Mich., 5–7 May 1969. International Association for Great Lakes Research, Ann Arbor, Mich. pp. 237–249.

Institutional publications and pamphlets:

Dzikowski, P.A., Kirby, G., Read, G., and Richards, W.G. 1984. The climate for agriculture in Atlantic Canada. Available from the Atlantic Advisory Committee on Agrometeorology, Halifax, N.S. Publ. ACA 84-2-500. Agdex No. 070.

Corporate author:

American Public Health Association, American Water Works Association, and Water Pollution Control Federation. 1975. Standard methods for the examination of water and wastewater. 14th ed. American Public Health Association, American Water Works Association, and Water Pollution Control Federation, Washington, D.C.

Thesis:

Keller, C.P. 1987. The role of polysaccharidases in acid wall loosening of epidermal tissue from young *Phaseolus vulgaris* L. hypocotyls. M.Sc. thesis, Department of Botany, The University of British Columbia, Vancouver, B.C.

Web site citation:

Quinion, M.B. 1998. Citing online sources: advice on online citation formats [online]. Available from worldwidewords.org/articles/citation.htm [accessed 20 October 2005].

Translation:

Koike, A., and Ogura, B. 1977. Selectivity of meshes and entrances of shrimp traps and crab traps. *J. Tokyo Univ. Fish.* **64**: 1–11. [Translated from Japanese by Can. Transl. Fish. Aquat. Sci. 4950, 1983.]

Tables

Tables must be typed on separate pages, placed after the list of references, and numbered with Arabic numerals in the order cited in the text. The title of the table should be a concise description of the content, no longer than one sentence, that allows the table to be understood without detailed reference to the text. Column headings should be brief, but may be amplified by footnotes. Vertical rules should not be used. A copy of the Journal should be consulted to see how tables are set up and where the lines in them are placed. Footnotes in tables should be designated by symbols (in the order *, †, ‡, §, ||, ¶, #) or superscript lowercase italic letters. Descriptive material not designated by a footnote may be placed under a table as a **Note**. Numerous small tables should be avoided, and the number of tables should be kept to a minimum.

Figure captions

Figure captions should be listed on a **separate page** and placed after the tables. The caption should informatively describe the content of the figure, without need for detailed reference to the text. Experimental conditions should not be included, but should be adequately covered in the Methods.

For graphs, captions should not repeat axis labels, but should describe what the data show. A single caption can be provided for multipart (composite) figures, with necessary details on the separate parts, identified by their individual labels. If the separate parts require enough information to warrant separate captions, then the composite should be separated into individual figures.

Appendices

An appendix should be able to stand alone, as a separate, self-contained document. Figures and tables used in an appendix should be numbered sequentially but separately from those used in the main body of the paper, for example, Fig. A1, Table A1, etc. If references are cited in an appendix, they must be listed in an appendix reference list, separate from the reference list for the article. If there is more than one appendix, label as follows: Appendix A, Appendix B, etc.

Supplementary material

Supplementary material (or data) consists of extra tables, figures (maps), detailed calculations, and data sets produced by the authors as part of their research, but not essential for understanding or evaluating the paper, and not published with the article in the print edition of the Journal. Depending on the policy of the Journal, such material may or may not be peer reviewed with the article. Supplementary material should be submitted with the article. During Web submission (**OS-PREY**), relevant files should be attached under "Supplementary data". For mail submission, supplementary material should be clearly marked as such. The National Research Council of Canada maintains a depository in which supplementary material may be placed, either at the request of the author or at the suggestion of the Editor. In addition, supplementary material can be made available in its native file format on the Journal Web site. It will be linked from the Web page of the associated article. Tables and figures should be numbered in sequence separate from those published with the paper (e.g., Fig. S1, Table S1). The supplementary material should be referred to in the printed article by footnotes. Copies of material in the depository may be purchased from the Depository of Unpublished Data, CISTI, National Research Council of Canada, Ottawa, ON K1A 0R6, Canada.

Computer programs

It is not the policy of the Journal to publish detailed printouts of computer program statements. Where the availability of these details enhances the usefulness of the paper, the author should submit two copies of the program for deposit (see Supplementary material section).

Illustrations

General

Each figure or group of figures should be planned to fit, after appropriate reduction, into the area of either one or two columns of text. The maximum finished size of a one-column illustration is 8.6 × 23.7 cm (3.4 × 9.3 in.) and that of a two-column illustration is 18.2 × 23.7 cm (7.2 × 9.3 in.). The figures (including halftones) must be numbered consecutively in Arabic numerals, and each one must be referred to in the text and must be self-explanatory. All terms, abbreviations, and symbols must correspond with those in the text. Only essential labelling should be used, with detailed information given

in the caption. Submission of noncontinuous (screened) photographs and scanned illustrations printed out on laser printers is not recommended, as moirés develop; a moiré is a noticeable, unwanted pattern generated by rescanning or re-screening an illustration that already contains a dot pattern.

Line drawings

All lines must be sufficiently thick (0.5 points minimum) to reproduce well, and all symbols, superscripts, subscripts, and decimal points must be in good proportion to the rest of the drawing and large enough to allow for any necessary reduction without loss of detail. Avoid small open symbols; these tend to fill in upon reproduction. **Lettering produced by dot matrix printers or typewriters, or by hand, is not acceptable.** The same font style and lettering sizes should be used for all figures of similar size in any one paper. Original recorder tracings of **NMR, IR, ESR spectra**, etc., are not acceptable for reproduction; they must be redrawn.

Maps

Maps must have very **clear, bold patterns** and must show longitudes and latitudes (or UTM coordinates) and a scale, to ensure proper identification of study locations. On **maps of Quebec**, the official name of municipalities must be used (e.g., Québec, Montréal, Clarke City) and physical features must be in French (e.g., Lac Bienville) except for those that are considered of pan-Canadian significance. Areas of pan-Canadian significance have an official form in English and French (e.g., Atlantic Ocean and Océan Atlantique) and should appear in the language of the paper. Quebec (the province) must also appear in the language of the paper. For a complete list of names of areas of pan-Canadian significance, see pp. 236–237 of *Le guide du rédacteur* (2nd ed., 1996), published by Public Works and Government Services Canada, Ottawa, ON K1A 0S5.

Photographs

Photographs should be continuous tone, of high quality, and with strong contrast. Only essential features should be shown. A photograph, or group of them, should be planned to fit into the area of either one or two columns of text **with no further reduction**. Electron micrographs or photomicrographs should include a scale bar directly on the print. The best results will be obtained if the authors match the contrast and density of all figures arranged as a single plate.

Colour illustrations

Colour illustrations will be at the author's expense. Further details on prices are available from Cecily Pearson, Managing Editor of the Journal (613-993-9099; fax: 613-952-7656; e-mail: cecily.pearson@nrc-cnrc.gc.ca).

Preparation of electronic graphic files

The preferred graphic application of NRC Research Press is CorelDraw! For other applications that can be used, see the electronic graphics list at pubs.nrc-cnrc.gc.ca/cgi-bin/rp/rp2_prog_e?cfas_graphics_e.html.

PC or Macintosh versions of True Type or Type 1 fonts should be used. **Do not use bitmap or nonstandard fonts.**

All figures should be submitted at the desired published size. For figures with several parts (e.g., *a, b, c, d*, etc.) cre-

ated using the same software application, assemble them into one file rather than sending several files.

Remember that the more complex your artwork becomes, the greater the possibility for problems at output time. Avoid complicated textures and shadings, especially in vector illustration programs; this increases the chance for a poor-quality final product.

Bitmap (raster) files are image files produced using a grid format in which each square (or pixel) is set to one level of black, colour, or grey. A bitmap (rasterized) file is broken down into the number of pixels or picture elements per inch (ppi). Pixels per inch is sometimes referred to as dots per inch (dpi). The higher the resolution of an image, the larger the number of pixels contained within the rectangular grid. The proper resolution should be used when submitting bitmap artwork. The minimum requirements for resolution are 600 dpi for line art, 1200 dpi for finelines (line art with fine lines or shading), 300 dpi for halftones and colour, and 600 dpi for combinations (halftones with lettering outside the photo area).

All **colour** files submitted must be as CMYK (cyan, magenta, yellow, and black). These colours are used in full-colour commercial printing. RGB graphics (red, green, and blue; colours specifically used to produce an image on a monitor) will not print correctly.

Vector files are image files produced using elements such as lines and shapes. Typically these files are used for line drawings.

Bitmaps can be imported into vector/draw applications only for the purpose of adding and overlaying information, lines, text, etc. Bitmaps should not be resized, cropped, rotated, or otherwise manipulated after importing.

Multimedia formats — Audio and video clips in the major multimedia formats are now accepted for NRC Research Press journals published in full-text HTML. For accepted formats, see the Electronic graphic list published on the Journal Web site.

Manuscript guidelines

Style guides

As a general guide for biological terms, *The CSE Manual for Authors, Editors, and Publishers: Scientific Style and Format* (7th ed., 2006) published by the Council of Science Editors, Reston, VA 20190, USA, is recommended.

Spelling

Spelling should follow *Webster's Third New International Dictionary* or the *Oxford English Dictionary*. Authors are responsible for consistency in spelling.

Nomenclature, abbreviations, and acronyms

Nomenclature and abbreviations should follow the rules

recommended by the International Union of Biochemistry (IUB) Committee of Editors of Biochemical Journals with support of IUPAC. As a general guide for biological terms, *The CSE Manual for Authors, Editors, and Publishers: Scientific Style Format* (7th ed., 2006), published by the Council of Biology Editors, Reston, VA 20190, USA, is recommended. For enzyme nomenclature, *Enzyme Nomenclature (1992): Recommendations of the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology* (Academic Press, San Diego, Calif.) should be followed.

Abbreviations and acronyms that are standard in the discipline need not be defined. All others must be defined when they are first mentioned in the text and those with more than one meaning should be avoided.

Units of measurement

SI units (Système international d'unités) should be used or SI equivalents should be given. Avoid ambiguous forms such as g C/m²/day; use g C·m⁻²·day⁻¹. This system is explained and other useful information is given in the *Metric Practice Guide* (2000) published by CSA International (178 Rexdale Blvd., Toronto, ON M9W 1R3, Canada). For practical reasons, some exceptions to SI units are allowed. Units such as kilocalorie, reciprocal centimetre (wave number), and atmosphere may be used for the foreseeable future.

Statistical analyses

The assumptions and (or) the model underlying any statistical analysis should be clearly stated. Symbols such as * and **, denoting levels of significance, should not be used except in conjunction with the actual values of the associated test statistic; actual *p* values are preferred.

Fish

The Journal follows the names and spelling for fishes recommended in *Common and Scientific Names of Fishes from the United States, Canada, and Mexico* (6th ed., Spec. Publ. No. 29, American Fisheries Society, 2004) and the gene nomenclature for protein-coding loci outlined in Shaklee et al. (Trans. Am. Fish. Soc. **119**: 2–15, 1990).

Writing numbers

In writing long numbers, the digits should be separated into groups of three, counted from the decimal marker to the left and right. The separator should be a space and not a comma, period, or any other mark, for example, 25 562 987 and not 25,562,987. In English text, the decimal marker should be a point, for example, 0.1 mL and not 0,1 mL. The decimal point in all numbers between 1 and –1, except 0, must be preceded by a 0. The sign × should be used to indicate multiplication, e.g., 3 × 10⁶ and not 3·10⁶.

NRC Research Press
National Research Council of Canada
Ottawa, ON K1A 0R6
Canada

E-mail: pubs@nrc-cnrc.gc.ca
URL: pubs.nrc-cnrc.gc.ca
Fax: 613-952-7656

Revised August 2007