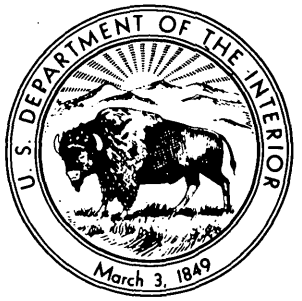
WRSIC-501

1974, REVISED

RUTH HOSCO

ABSTRACTING AND INDEXING GUIDE



WATER RESOURCES SCIENTIFIC INFORMATION CENTER

OFFICE OF WATER RESOURCES RESEARCH

U.S. DEPARTMENT OF THE INTERIOR

WASHINGTON, D.C. 20240

WRSIC-501

ABSTRACTING AND INDEXING GUIDE

1974, Revised

WATER RESOURCES SCIENTIFIC INFORMATION CENTER
Office of Water Resources Research
U.S. Department of the Interior
Washington, D.C. 20240

ABSTRACTING AND INDEXING GUIDE

These instructions have been prepared for those who abstract and index scientific and technical documents for the Water Resources Scientific Information Center (WRSIC). With the recent publication growth in all fields, information centers have undertaken the task of keeping the various scientific communities aware of current and past developments. An abstract with carefully selected index terms offers the user of WRSIC services a more rapid means for deciding whether a document is pertinent to his needs and professional interests, thus saving him the time necessary to scan the complete work. These means also provide WRSIC with a document representation or surrogate which is more easily stored and manipulated to produce various services.

Authors are asked to accept the responsibility for preparing abstracts of their own papers to facilitate quick evaluation, announcement, and dissemination to the scientific community.

ABSTRACTING

Definition

An abstract of a document is a shortened version containing or referring to essential parts of the original. Other terms more or less synonymous are extract, synopsis, summary, digest, and condensation. Because of its abbreviated content, an abstract cannot contain all the information given in the complete document; however, it can provide the reader with useful information and with a means of determining whether the complete document should be obtained for study. From the author's viewpoint, he should strive to be sufficiently descriptive of the most significant points; from the reader's viewpoint, the abstract should be sufficiently representative of the contents to enable a quick decision as to pertinency.

Kinds of Abstracts

Two kinds of abstracts are used in the WRSIC system: INFORMATIVE and INDICATIVE. An informative abstract is one that contains the essential facts reported in a document, including conclusions or recommendations. It may satisfy the information needs of the reader without his having to see the complete document. An indicative abstract tells the reader about the general content of the document. This type should also be explicit enough to evaluate pertinency, but will not usually substitute for the full document.

The informative abstract probably does not require much more time to prepare than the indicative type, and is therefore preferred by WRSIC. Some documents, however, are so long and detailed that abstract space limitations make the indicative type more appropriate.

Abstract Content and Format

Rigid standardization of the abstract content or format is neither necessary nor desirable. Content and order of presentation will depend on the type of document being abstracted and type of abstract to be written. Some guides for abstracting are:

* Use complete sentences.
* Avoid repeating the title in the first sentence.
* Use language from the document whenever possible.
* Tell what is new.
* Give the method of investigation used.
* Report the conclusions.
* Give important results justifying the conclusions.
* Indicate whether important tables or graphs are included.
* Use only those symbols shown in Appendix C.

When abstracting another person's work, do not editorialize. An abstract should never reflect the opinion of the abstracter as to the quality of work performed or validity of conclusions drawn; nor should it include material or comments not in the original document.

The abstract may start with a statement as to what new method, result, or theory is reported, or it may begin with the purpose of the study and set the stage for results and conclusions. Other abstracts may start with conclusions. In any case, the reader should experience a smooth flow of thought from one part to the next.

If an author abstract is available, the contents may be used as a guide to preparation of the WRSIC abstract.

Tense and Voice

An abstract may be written in either the present or past tense. However, since many abstracts report the result of research or experiments, it is preferable that they be written in the past tense. Some portions, such as conclusions that are independent of time, may be written in the present tense. The active voice is preferred.

Additional information on writing abstracts may be found in Appendix D: SELECTED BIBLIOGRAPHY.

INDEXING

Purpose of Indexing in Depth

Indexing a document in depth accomplishes two objectives: (1) it provides multiple access to the document from many subject-matter points or concepts, and (2) it allows flexibility in coordinating several terms describing the user's subject interest or question in computerized search programs.

Definitions

Indexing is the selection of specific words or terms which describe the content of a document. Such words are called descriptors and identifiers. As used by the Water Resources Scientific Information Center, a descriptor is a word or a combination of terms included in the WATER RESOURCES THESAURUS.

Identifiers are other terms not found in the thesaurus but needed for the complete indexing of a document. Identifiers may also include geographical names, trade names, names of procedures, processes, or techniques.

Procedure

Use of the WATER RESOURCES THESAURUS, ~~Second~~ THIRD Edition, is required for indexing. Organizational and individual contributors to Selected Water Resources Abstracts may obtain copies from WRSIC.

Representative terms that cover the concepts discussed in the document should be listed and compared with those available in the thesaurus. If a term which appears on your list is in the thesaurus,use it as a descriptor; if not, use it as an identifier.

There is no fixed number of descriptors which will adequately describe a document. Between 10 and 20 descriptors are customarily used to index the average report of 25 pages. In general, the greater the depth of indexing the greater the chance of retrieving only relevant documents in a computer-aided search. In attempting to provide highly specific and therefore more relevant descriptors, do not omit the broader and more generic terms. Aim to select not only specific terms but also some broader terms necessary to generally describe the document content.

Weighting Descriptors and Identifiers

All descriptors used in indexing a document are not of equal importance in representing the contents. Ideally, each term should be weighted in accordance with a scale of relevance. As a practical approach, the WRSIC system provides for the use of asterisks to show that some terms are more descriptive of the content of the document. For example, of a total of 15 descriptors chosen, 4 or 5 may be an appropriate number to be accorded that designation. However, the use of the asterisk should be reserved for the more specific terms; it should rarely be used for a broad term, such as biology, water pollution, hydrology, or economics.

The most important use of the asterisked descriptors and identifiers is in the preparation of the computerized subject indexes for Selected Water Resources Abstracts. Since a machine-produced subject index would list the title of a document under as many descriptors and identifiers as were used to index that document, economy of printing space and machine time dictates that only the most applicable descriptors and identifiers be asterisked.

INPUT TRANSACTION FORM
(WRSIC 102)

Number to Prepare

Ordinarily only one abstract per document is required. However, there are instances in which a single volume requires several abstracts; examples of these are symposia or conference proceedings. In these cases a general abstract is to be prepared for the volume as a whole, and separate abstracts for each paper in the volume (Exhibit D).

Steps in Preparation

(See EXHIBITS A through F for examples of entries for Journal Article, Book, Technical Report, Conference Paper, Translation, and Foreign Language Paper).

NOTE: IGNORE SHADED AREAS OF THE FORM.

3. ACCESSION NUMBER: Leave blank; this number will be assigned as the WRSIC identification number for SELECTED WATER RESOURCES ABSTRACTS.

4. TITLE: In UPPER case, followed by a comma, e.g. REMOVAL OF ALGAL NUTRIENTS FROM RAW WASTE-WATER: LIME,. For non-English texts, the translated title is to be followed in parentheses by the title in vernacular, or, in the case of Cyrillic alphabets, by the transilterated form, e.g., METHODS OF CALCULATING SNOW COVER DENSITY (Nekotoryye sposoby raschetov plotnosti snezhnego pokrova),.

7. AUTHOR(s): Limited to five. Transcribe surname and initials only, e.g., Buzzell, J.C. and Sawyer, C.N. Leave blank if anonymous. Editors, compilers, etc. may be listed in SUPPLEMENTARY NOTES (Block 15). Do not list chairmen of committees.

9. ORGANIZATION: Name and location of organization with which the senior author is affiliated, e.g., California University, Berkeley, Engineering Research Institute. NOTE: use California University rather than University of California. This is to derive a uniform organizational index based on significant words in organizational names.

DO NOT ABBREVIATE ORGANIZATIONAL NAMES.

10. PROJECT NO.: Project designation as shown on title page, e.g., OWRR A-007-ARK(1).

11. CONTRACT/GRANT NO.: Like project designation, this number is usually found on title page, e.g., 14-0001-31-7898.

15. SUPPLEMENTARY NOTES: Enter all bibliographic data necessary for the full identification of the source. For example, the essential elements for a journal article are: name of journal, volume, number of inclusive pages, date; and number of figures, tables, and references, e.g., Naval Research Logistics Quarterly, Vol.15, No.1, p 63-69, March 1968. 8 fig, 2 tab, 8 ref. Use this block also to identify translations, e.g., Translated from Gidrologiya i Meteorologiya, Vol.4, No.4, 1968, and for names of editors, compilers, etc.

DO NOT ABBREVIATE NAMES OF JOURNALS OR MONTHS.

16. ABSTRACT: The abstract should not exceed 200 words. Care should be taken to avoid typographical errors in the text; at least one careful proofreading should be made.

17a. DESCRIPTORS: Use the WATER RESOURCES THESAURUS to select appropriate descriptors. Enter first those descriptors to be marked with asterisks as the most relevant terms, followed by all the other descriptors; separate them by commas, e.g., *Reefs, *Sand bars, Shoals, Coral,.

17b. IDENTIFIERS: Complete indexing often requires selecting additional terms not found in the WATER RESOURCES THESAURUS. As also for the DESCRIPTORS, list first those terms marked with asterisks as being the most relevant, followed by all the rest, e.g., *Biloxi (Miss.), *Hurricane Camille, Roosevelt Island (Miss.),.

17c. COWRR SUBJECT FIELD AND GROUP: Categorize the document by using the CLASSIFICATION SCHEME for the Selected Water Resources Abstracts (Appendix B). Second ~~and third~~ field and group combinations should be used for documents that transcend subject matter lines, e.g., 05B, 06E for a paper on legal aspects of pollution.

18. AVAILABILITY: If known, list publisher or sales agent, his location, price per copy in paper, microfiche or microfilm, e.g., Available from the National Technical Information Service, Springfield, Virginia 22151, as PB 123456, for $3.00 in paper copy, $1.45 in microfiche.

Send the completed form, accompanied by a copy of the document, to:

WATER RESOURCES SCIENTIFIC INFORMATION CENTER
U.S. Department of the Interior
Washington, D.C. 20240

APPENDIX A: EXHIBITS

A: JOURNAL ARTICLE

SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

1. Report No. | 2. | 3. Accession No. W (leave blank)

4. Title: A POLYCHLORINATED BIPHENYL (AROCLOR 1254) IN THE WATER, SEDIMENT, AND BIOTA OF ESCAMBIA BAY, FLORIDA,

5. Report Date | 6. | 8. Performing Organization Report No.

7. Author(s): Duke, T. W., Lowe, J. I., and Wilson, A. J., Jr.

10. Project No.

9. Organization: Bureau of Commercial Fisheries, Gulf Breeze, Florida, Center for Estuarine and Menhaden Research.

11. Contract/Grant No.

13. Type of Report and Period Covered

12. Sponsoring Organization

15. Supplementary Notes: Bulletin of Environmental Contamination and Toxicology, Vol. 5, No. 2, p 171-180, March-April, 1970. 2 fig, 3 tab, 7 ref.

16. Abstract

Aroclor 1254, a polychlorinated biphenyl, was detected in the biota, sediment, and water of estuarine areas near Pensacola, Florida. Only one source of the chemical, an industrial plant on the Escambia River, was found. Water, sediment, fish, blue crab, o[illegible]r, and shrimp samples were collected from April through Octo[illegible] and analyzed by using gas chromatography procedures. Bi[illegible]h, shrimp, and oysters were conducted under control[illegible]uations to determine the toxic effects of Aroclor [illegible]hrimp were the most sensitive and were killed when [illegible]ppb of Aroclor 1254 in flowing sea water. The Aroclo[illegible]ater from Escambia Bay, even near the mouth of the river [illegible] than 1 ppb. Shrimp collected from the bay contained a maximum [illegible].5 ppm. Thus, shrimp in the bay probably were not exposed to lethal levels during the sampling period. Highest concentrations in the water occurred during August and decreased when leakage from the plant was corrected. (Mortland-Battelle)

JOURNAL ARTICLE

17a. Descriptors: *Water pollution effects, *Bioassay, *Toxicity, *Chlorinated hydrocarbons, *Bioindicators, Industrial wastes, Florida, Sessile algae, Estuaries, Chemical wastes, Gas chromatography, Sediments, Oysters, Shrimp, Crabs, Water pollution sources, Sea water, Trout, Toxins, Lethal limit, Analytical techniques, Pollutant identification.

17b. Identifiers

*Polcychlorinated biphenyls, *Aroclor 1254, *Escambia River, Pinfish, Flounder, Croaker, Menhaden, Blue crabs.

17c. COWRR Field & Group: 05C, 05A

18. Availability | 19. Security Class. (Report) | 21. No. of Pages | Send To:

20. Security Class. (Page) | 22. Price

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WASHINGTON, D. C. 20240

Abstractor: John E. Mortland | Institution: Battelle Memorial Institute

B: BOOK

SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

1. Report No. | 2. | 3. Accession No. W (leave blank)

4. Title
WATER RESOURCES ENGINEERING,

5. Report Date

6.

8. Performing Organization Report No.

7. Author(s)
Linsley, R. K., and Franzini, J. B.

10. Project No.

9. Organization
Stanford University, Stanford, Calif, Dept of Civil Engineering

11. Contract/Grant No.

13. Type of Report and Period Covered

12. Sponsoring Organization

15. Supplementary Notes
McGraw-Hill, New York, N.Y. 1964. 654 p.

16. Abstract

With the world population doubling every four decades, the water resources of the world are becoming its most important assets. Skilled planning and ma e necessary to achieve the level of efficiency in w will be required in the future. Investments in development are influenced by economic, social BOOK onsiderations as well as the basic engineerin irst five chapters present the subject of hy chapters discuss the legal aspects of water use, th works utilized in most types of water-resources proj , principles of engineering economy basic to water managemen, the principal water uses, and the planning procedures for single and multipurpose projects. (Loeg-Rutgers)

17a. Descriptors *Water resources development, *Engineering, *Planning, *Water management, Investment, Groundwater, Runoff, Probability, Droughts, Water law, Reservoirs, Dams, Spillways, Gates, Outlet works, Open channels, Pressure conduits, Hydraulic machinery, Economics, Irrigation, Navigation, Water supply, Hydroelectric power, Drainage, Sewage, Disposal, Water quality control, Flood control.

17b. Identifiers
Storage routing, Flood frequency, Flood formulas, Rainfall frequency, River navigation.

17c. COWRR Field & Group 06B, 04A

18. Availability	19. Security Class. (Report)	21. No. of Pages	Send To:
	20. Security Class. (Page)	22. Price	WATER RESOURCES SCIENTIFIC INFORMATION CENTER U.S. DEPARTMENT OF THE INTERIOR WASHINGTON, D. C. 20240

Abstractor | Institution

WRSIC 102 (REV. JUNE 1971) GPO 913.261

C: TECHNICAL REPORT

SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

1. *Report No.* | 2. | 3. *Accession No.* W (leave blank)

4. *Title*
INSTITUTIONAL PATTERNS IN EVOLVING PROGRAMS FOR WATER RESOURCE MANAGEMENT,

5. *Report Date*

6.

8. *Performing Organization Report No.*

7. *Author(s)*
Howards, I., and Kaynor, E. R.

10. *Project No.*
OWWR B-003-MASS(1)

9. *Organization*
Massachusetts University, Amherst, Water Resources Center.

11. *Contract/Grant No.*

13. *Type of Report and Period Covered*

12. *Sponsoring Organization*

15. *Supplementary Notes*
Publication No. 15, 1971. 238 p, 11 fig, 1 tab, 90 ref, 4 append.

16. *Abstract*
An attempt was made to determine what actually occurs at the local level of government in the process of planning and implementing water resource proposals and what relationship exists between the local level of government and the type of community in which water resource decisions are ma[illegible] Metropolitan water supply systems studied were: Boston, Mass; Detroit [illegible] ingfield, Mass; and Hartford, Conn. Five specific water sup[illegible] uations were compared, and a statistical study was made of the [illegible]en certain community profile characteristics and four attri[illegible] service in Massachusetts. Water supply service is af[illegible]e of population concentration, thereby creating 'need' for [illegible]em; by geography, thereby affecting technical feasi[illegible]n which the water service agency is administered (includin[illegible]e form of agency organization, its authority to act, and the legal c[illegible]s under which it operates); by the agency's relationship to other agencie[illegible]y the type of government under which the agency operates; and by the type of community within which water service decisions are made (including the community's socio-economic and political characteristics). The most important factors were the geologic, demographic, socioeconomic, and political 'base' within the administrative agency functions. (Campbell-OWWR)

TECHNICAL REPORT

17a. *Descriptors*
*Cities, *Planning, *Political aspects, *Water supply, *Institutions, *Local governments, Organizations, Administrative agencies, Institutional constraints, Massachusetts, Urbanization, Michigan, City planning, Connecticut, Social aspects, Competing uses, Governments, Legal aspects, Legislation.

17b. *Identifiers*
Boston, Detroit, Springfield (Mass), Hartford (Conn).

17c. *COWRR Field & Group* 06E, 06B

18. *Availability* | 19. *Security Class. (Report)* | 20. *Security Class. (Page)* | 21. *No. of Pages* | 22. *Price*

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Abstractor John T Campbell | *Institution* Office of Water Resources Research

WRSIC 102 (REV. JUNE 1971) GPO 913.261

D: CONFERENCE PAPER

SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

1. Report No. | 2. | 3. Accession No. W (leave blank)

4. Title
SURVIVAL OF ENTERIC BACTERIA AND VIRUSES IN MUNICIPAL SEWAGE LAGOONS,

5. Report Date
6.
8. Performing Organization Report No.
10. Project No.
11. Contract/Grant No.
13. Type of Report and Period Covered

7. Author(s) Slanetz, L. W., Bartley, C. H., Metcalf, T. G., and Nesman, R.

9. Organization
New Hampshire University, Durham, Department of Microbiology.

12. Sponsoring Organization

15. Supplementary Notes In: 2nd International Symposium for Waste Treatment Lagoons, June 23-25, 1970, Kansas City, Missouri, 217 Nuclear Reactor Center, University of Kansas, Lawrence, p. 132-141. 6 fig, 6 tab, 12 ref.

16. Abstract

Samples were taken from the oxidation lagoons of 3 communities; one community having a single pond, one a 3-pond series, and one a 4-pond series. The samples were analyzed for coliforms, fecal coliform, fecal streptococci, salmonellae, and enteric viruses. The results ranged in tabular form and analyzed for percentage removal. Coliforms ranged from 95-99% for one or two stage ponds in series. Salmonellae and enteric viruses were isolated at all ... purity of effluent samples. Coliforms showed a mar... rate during the winter temperatures of 1 to 10 ... pond series, counts at 10 to 26 C were as low as 3/ml o..., fecal coliforms, and fecal streptocci. Salmonellae we... from only one out of 24 samples from the third or fourth pond du... summer periods, but the numbers of indicator organisms and the frequency of isolation of pathogens were appreciably higher during the winter. A significant number of enteric viruses was isolated for samples year around. Therefore, oxidation pond effluent discharged directly to a receiving water may create health hazards. (Lowry-Texas)

CONFERENCE PAPER

17a. Descriptors * Oxidation lagoons, *Pathogenic bacteria, *Coliforms, *Salmonella, *Streptococcus, *Enteric bacteria, Stagnant water, Seepage, Membrane filters, Waste water treatment, Public health, Temperature, Sewage bacteria, E. Coli, Bacteria, Viruses, Water purification.

17b. Identifiers

*Enteric viruses, Multi-stage lagoons, Survival rates, Fecal Streptococci, Fecal coliforms.

17c. COWRR Field & Group 05D, 05F

18. Availability | 19. Security Class. (Report) | 20. Security Class. (Page) | 21. No. of Pages | 22. Price

Send To:
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Abstractor Mark V. Lowry | Institution University of Texas, Austin

E: TRANSLATION

SELECTED WATER RESOURCES ABSTRACTS
INPUT TRANSACTION FORM

1. Report No. | 2. | 3. Accession No. W (Leave blank)

4. Title
SPECIFIC DISCHARGE OF ENTRAINED SEDIMENTS,

5. Report Date
6.
8. Performing Organization Report No.

7. Author(s)
Rossinskii, K. I.

10. Project No.

9. Organization

11. Contract/Grant No.

13. Type of Report and Period Covered

12. Sponsoring Organization

15. Supplementary Notes Soviet Hydrology, Selected Papers No. 2, p 152-158, 1967, 2 fig. Translated from Trudy Gossudarstvennogo Gidrologicheskogo Instituta, No. 141, p 35-42, 1967.

16. Abstract
A formula is proposed for computing the discharge of bed load sediments under the influence of velocity pulsations. Discharge is a function of compactness of particle motion, defined as the ratio of instantaneous volume of moving particles to the volume of the layer in which motion occurs. Compactness is a function of particle shape, the degree to which the bottom surface is protected from scour by roughness elements, and the proportion of the pulsating flow exceeds threshold particle displacement velocity. In the analysis presented, shape and roughness are treated as constant. The equations relate discharge to velocity for each particle size present in the sediment by use of Gaussian probability curves to estimate the part of the pulsating flow exceeding scour threshold. (Knapp-USGS)

TRANSLATION

17a. Descriptors
*Sediment discharge, *Bed load, *Unsteady flow, Open channel flow, Velocity, Particle size, Particle shape, Roughness hydraulic, Probability, Sedimentation, Discharge water, Discharge measurement, Sediment load, Movement, Flow.

17b. Identifiers
Pulsating flow.

17c. COWRR Field & Group 02J

18. Availability | 19. Security Class. (Report) | 20. Security Class. (Page) | 21. No. of Pages | 22. Price | Send To: WATER RESOURCES SCIENTIFIC INFORMATION CENTER U.S. DEPARTMENT OF THE INTERIOR WASHINGTON, D. C. 20240

Abstractor George Knapp | Institution U.S. Geological Survey, Water Resources Division

WRSIC 102 (REV. JUNE 1971) GPO 913.261

F: FOREIGN LANGUAGE PAPER

SELECTED WATER RESOURCES ABSTRACTS

INPUT TRANSACTION FORM

1. Report No. | 2. | 3. Accession No. W

4. Title FORMATION OF PHYTOPLANKTON IN THE BRATSK RESERVOIR (FORMIROVANIYE BRATSKOGO VODOKHRANILISHCHA),

5. Report Date

6.

8. Performing Organization Report No.

7. Author(s)
Kozhova, O.M.

10. Project No.

9. Organization
Limnologicheskii Institut, Irkutsk (USSR)

11. Contract/Grant No.

13. Type of Report and Period Covered

12. Sponsoring Organization

15. Supplementary Notes In: Formirovaniye prirodnykh usloviy i zhizni Bratskogo vodokhranilishcha; Izdatel'stvo 'Nauka', Moscow, p. 26-160, 1970. 24 fig, 37 tab, 68 ref.

16. Abstract Seasonal changes in the composition, production, and vertical and horizontal distribution of phytoplankton in the Bratsk Reservoir, Eastern Siberia, (area-5,500 sq km; volume-179 cu km) during its early impoundment (1963065) are examined. The phytoplankton is represented by 118 algal species, consisting of 47 Chlorophyta, 20 Cyanophyta, 17 Bacillariophyta, 14 Pyrrophyta, 11 Chr[illegible]tya, and 9 Euglenophyta. A total of 17 dominant species were identified in 1[illegible] in 1965. The most massive algal populations are Aphanizomenon flos-aqu[illegible]is hantzschii, Melosira islandica, helvetica, and Asterionella f[illegible] blooms are found under ice (although the biomass is several m[illegible].ophyta are predominant in spring (several g/cu m); an annual bi[illegible]20 g of dominant Aphanizomenon flos-aqua/cu m is observed in [illegible]aximum biomasses increased from 12 to 320 g/cu m between 1963 a[illegible]areal indices for the reservoir during the summer maximum were 55 g/sq [illegible] 195 g/sq in 1965. Maximum biomass index was 816 g/sq m and approached [illegible]c conditions. Total phytoplankton production of oxygen also changed. In 1964 [illegible] was 100 g/sq m or 370 kcal/sq m during the growing period and in 1965-66 it was 389 g/sq m. River flow contains about 13,000 metric tons of phytoplankton. A total of 30,000 metric tons is discharged from the reservoir. Phytoplankton composition, production, vertical distribution, and biomass are determined by the morphometric heterogeneity of the reservoir, its enormous size, and by differences in reservoir depths, which range from 3 to 100 m. (Josefson-USGS)

17a. Descriptors *Phytoplankton, *Reservoir stages, *Chlorophyta, *Cyanophyta, *Pyrrophyta, Chrysophyta, *Seasonal, Aquatic plants, Aquatic algae, Reservoirs, Early impoundment, Biomass, Ice, Diatoms, Chrysophyta, Euglenophyta, Water temperature, Thermal stratification, Eutrophication, Oxygen

17b. Identifiers *Irkutsk Oblast, *Bratsk Reservoir, USSR, Metalimnion, Bacillariophyta, Volvocineae, Protococcineae, Ulotrichineae, Desmidiales

17c. COWRR Field & Group 05C, 02H

18. Availability	19. Security Class. (Report)	21. No. of Pages	Send To:
	20. Security Class. (Page)	22. Price	WATER RESOURCES SCIENTIFIC INFORMATION CENTER U.S. DEPARTMENT OF THE INTERIOR WASHINGTON, D. C. 20240

Abstractor Paul Josefson | Institution U.S. Geological Survey

APPENDIX B: CLASSIFICATION SCHEME

CLASSIFICATION SCHEME

for

Selected Water Resources Abstracts

WATER RESOURCES SCIENTIFIC INFORMATION CENTER
Office of Water Resources Research
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FIELDS

01	NATURE OF WATER
02	WATER CYCLE
03	WATER SUPPLY AUGMENTATION AND CONSERVATION
04	WATER QUANTITY MANAGEMENT AND CONTROL
05	WATER QUALITY MANAGEMENT AND PROTECTION
06	WATER RESOURCES PLANNING
07	RESOURCES DATA
08	ENGINEERING WORKS
09	MANPOWER, GRANTS, AND FACILITIES
10	SCIENTIFIC AND TECHNICAL INFORMATION

FIELDS and GROUPS

01 NATURE OF WATER

- A Properties
- B Aqueous solutions and suspensions

02 WATER CYCLE

- A General
- B Precipitation
- C Snow, ice, and frost
- D Evaporation and transpiration
- E Streamflow and runoff
- F Groundwater
- G Water in soils
- H Lakes
- I Water in plants
- J Erosion and sedimentation
- K Chemical processes
- L Estuaries

03 WATER SUPPLY AUGMENTATION AND CONSERVATION

- A Saline water conversion
- B Water yield improvement
- C Use of water of impaired quality
- D Conservation in domestic and municipal use
- E Conservation in industry
- F Conservation in agriculture

04 WATER QUANTITY MANAGEMENT AND CONTROL

- A Control of water on the surface
- B Groundwater management
- C Effects on water of man's nonwater activities
- D Watershed protection

05 WATER QUALITY MANAGEMENT AND PROTECTION

- A Identification of pollutants
- B Sources and fate of pollution
- C Effects of pollution
- D Waste treatment processes
- E Ultimate disposal of wastes
- F Water treatment and distribution
- G Water quality control

06 WATER RESOURCES PLANNING

- A Techniques of planning
- B Evaluation process
- C Cost allocation, cost sharing, pricing/repayment
- D Water demand
- E Water law and institutions
- F Nonstructural alternatives
- G Ecologic impact of water development

07 RESOURCES DATA

- A Network design
- B Data acquisition
- C Evaluation, processing and publication

08 ENGINEERING WORKS

- A Structures
- B Hydraulics
- C Hydraulic machinery
- D Soil mechanics
- E Rock mechanics and geology
- F Concrete
- G Materials
- H Rapid excavation
- I Fisheries engineering

09 MANPOWER, GRANTS, AND FACILITIES

- A Education - extramural
- B Education - in-house
- C Research facilities
- D Grants, contracts, and research act allotments

10 SCIENTIFIC AND TECHNICAL INFORMATION

- A Acquisition and processing
- B Reference and retrieval
- C Secondary publication and distribution
- D Specialized information center services
- E Translations
- F Preparation of reviews

FIELDS and GROUPS - DEFINITIONS

01 NATURE OF WATER

Fundamental research on the water substance.

GROUPS		SCOPE
A	Properties of water	Study of the physical and chemical properties of pure water and its thermodynamic behavior in various states.
B	Aqueous solutions and suspensions	Study of the effects of various solutes on properties of water; surface interactions; colloidal suspensions.

Watery

tiny, solid particles suspended in a liquid

* reversible transformation of heat into other forms of energy

02 WATER CYCLE

Analysis and interpretation of the natural occurrence, character, transport, and distribution of water. This category covers research of the basic nature in the natural processes and dimensions of the hydrologic cycle, in contrast to subsequent categories which are concerned with the application of research to water management problems. The category represents an essential supporting effort to applied problems in later categories.

GROUPS		SCOPE
A	General	Studies involving two or more phases of the water cycle such as hydrologic models; rainfall-runoff relations; surface and groundwater relationships; watershed studies.
B	Precipitation	Investigation of spatial and temporal variations of precipitation; physiographic effects; time trends; extremes; probable maximum precipitation; structure of storms.
C	Snow, ice, and frost	Studies of the occurrence and thermodynamics of water in the solid state in nature; spatial variations of snow and frost; formation of ice and frost; breakup of river and lake ice; glaciers; permafrost.
D	Evaporation and transpiration	Investigation of the process of evaporation from lakes, soil, transpiration process in plants; methods of estimating actual evapotranspiration or energy balance.

E	Streamflow and runoff	Mechanics of flow in streams; mechanics of overland flow; flood routing; bank storage; space and time variations (including high and low-flow frequency); droughts; floods.
F	Groundwater	Mechanics of groundwater movement; multiphase systems; sources of natural recharge; mechanics of flow to wells and drains; subsidence; properties of aquifers.
G	Water in soils	Infiltration, movement and storage of water in the zone of aeration, including soil.
H	Lakes	Hydrologic, hydrochemical, hydrobiological, and thermal regimes of lakes and reservoirs; water level fluctuations; currents; waves.
I	Water and plants	Role of plants in the hydrologic cycle; water requirements of plants; interception.
J	Erosion and sedimentation	Erosion process; prediction of sediment yield; sedimentation in lakes and reservoirs; stream erosion; sediment transport; (Classify erosion and sediment control in 04D: Watershed protection).
K	Chemical processes	Chemical interaction between water and its natural environment; chemistry of precipitation.
L	Estuaries	Tidal effects on flow and stage; effects of sediment deposition, sea water intrusion, or other special problems of the estuarine environment.

03 WATER SUPPLY AUGMENTATION AND CONSERVATION

Quantitative increases in the availability of water through improved management and conservation practices. As between this category and category 04. WATER QUANTITY MANAGEMENT AND CONTROL, the emphasis is on augmentation. If the primary objective is to control the flow of water rather than augment supply, category 04 is applicable.

	GROUPS	SCOPE
A	Saline water conversion	Methods of desalting sea water and brackish water.
B	Water yield improvement	Increasing streamflow or improving its distribution through land management; determining hydrologic response to artificially induced rainfall; water harvesting from impervious area; phreatophyte control; reservoir evaporation suppression.
C	Use of water of impaired quality	Use of low-quality water for specific agricultural, industrial, or municipal purposes; agricultural use of water of high salinity. (Improvement of water quality belongs in 05).
D	Conservation in domestic and municipal use	Methods of reducing domestic and municipal water use without impairment of service. (Evaluation of health or other water quality criteria for waste water renovation or reuse belongs in 05D).
E	Conservation in industrial use	Reduction in both consumption and diversion requirements for industry.
F	Conservation in agricultural use	More efficient irrigation practices; chemical control of evaporation and transpiration; lower water-use plants.

04 WATER QUANTITY MANAGEMENT AND CONTROL

Practices or processes for management of water, exclusive of conservation, and for determining the effects of man's nonwater activities on water quantity. Emphasis for this category is on the evaluation of man's water quantity control efforts.

The choice between this category and category 03 is noted in 03. Similarly, the choice between this category and category 02 is heavily dependent on whether the research is directed toward understanding the physics of natural processes (02) or evaluation of man's control efforts (04). For example, mechanics or extent of natural erosion processes belongs in 02J: Erosion and sedimentation, while methods of controlling erosion belongs in 04D: Watershed protection.

	GROUPS	SCOPE
A	Control of water on the surface	Effects of land management on runoff; land drainage; seepage control; effects of control programs and devices on the stage and time distribution of streams, lakes, and estuaries; stream forecasts; control of noxious weeds and objectionable plant growth in surface channels.
B	Groundwater management	Artificial recharge; conjunctive operation; irrigation effects.
C	Effects on water of man's nonwater activities	Effects of urbanization, highways, logging, or urban land use on water yields and flow rates.
D	Watershed protection	Methods for controlling erosion which reduces sediment load and conserves soil.

05 WATER QUALITY MANAGEMENT AND PROTECTION

Methods for identifying, describing, and controlling pollution caused by increasing quantities of municipal, industrial, agricultural, and other wastes containing physical, chemical, and biological pollutants entering ground and surface waters. This category includes studies on the fate of pollutants in the environment and the effects of pollution on various uses of water resources. Routine sampling and data collection are excluded.

GROUPS		SCOPE
A	Identification of pollutants	Techniques for detection, identification, and quantification of physical, chemical, and biological pollutants.
B	Sources and fate of pollution	Determination of sources of pollutants in water; determination of the pathways by which pollutants move from sources through surface, ground, and coastal waters; studies on changes in their character or composition due to physical, biological or chemical action.
C	Effects of pollution	Definition of the effects of pollutants, singly and in combination on different water uses: municipal, industrial, agricultural, recreational, and on the propagation of aquatic life and wildlife; studies on the cause of eutrophication in fresh and marine waters.
D	Waste water treatment processes	Single or combined physical, chemical, and biological treatment processes to remove or modify impurities found in waste waters; improvement of conventional treatment methods for more complete purification of waste waters, including treatment for direct reuse; collection systems.

E	Ultimate disposal of wastes	Treatment and disposal of waste concentrates resulting from the treatment of contaminated waters. Such wastes include material removed from municipal, industrial, and agricultural wastes during treatment, the waste brines from desalting plants or oil fields, radioactive waste concentrates, wash water from filters of water treatment plants.
F	Water treatment and distribution	Protection of water supply sources to minimize need for, or load on, treatment facilities; development of more efficient and economical methods of water treatment for municipal, industrial, agricultural, or recreational uses; alteration of water quality for health; deterioration during storage and and distribution.
G	Water quality control	Research on methods to control groundwater quality (except waste water treatment) such as: production modification or substitution, process changes, improved agricultural practices for preventing pollution from pesticides and other agricultural chemicals; management of groundwater impoundments, estuaries, and streams to improve water quality, and supplemental aeration.

06 WATER RESOURCES PLANNING

Methods, procedures, and techniques for improving the planning and decision-making process. Primary emphasis of this category throughout is on development of methodologies and criteria for providing meaningful decision rules in planning which will adequately reflect the physical, economic, legal, and social aspects of water management. This category excludes economic, legal, or social analyses which represent an integral phase of research activities conducted under other major categories, and is not limited to evaluation of the physical aspects only of applied management techniques.

GROUPS		SCOPE
A	Techniques of planning	Application of systems analysis to project planning; treatment of uncertainty; probability studies.
B	Evaluation process	Methods, concepts, and criteria for evaluating project benefits; discount rate; project life; economic, social, and technological projections; reliability of projections; value of water in various uses.
C	Cost allocation, cost sharing, pricing/ repayment	Methods of calculating repayment and establishing prices for vendible products; techniques of cost allocation; cost sharing, pricing, and repayment policies.
D	Water demand	Water quantity and quality requirements of various uses, both diversion and consumption.

E	Water law and institutions	State, local, and federal law studies on changes and additions to encourage more efficient water use; institutional structure and constraints which influence water decisions at all levels of government.
F	Nonstructural alternatives	Achievement of water resources development aims by nonstructural methods such as flood plain zoning, flood insurance.
G	Ecologic impact of water development	Effects of water resources management operations on the overall ecology of an area (excludes effects of pollution which belongs in 05C).

07 RESOURCES DATA

Strategies for establishing field data collection programs, developing more efficient data acquisition methods or equipment, and initiating data evaluation, processing, and publication programs. This category includes studies to determine data needs as well as most efficient methods to meet these needs. Design of instrument networks which are incidental to the primary purpose of the effort should be placed under the other appropriate categories.

	GROUPS	SCOPE
A	Network design	Data requirements and methods of collecting data.
B	Data acquisition	New and improved instruments and techniques for collection of water resources data; telemetering equipment; remote sensing.
C	Evaluation, processing and publication	Methods of processing data; form and nature of published data; maps of data.

08 ENGINEERING WORKS

Improved technology for designing, constructing, and operating works which are required to implement water development plans. This category excludes works relevant to a specific goal, such as water treatment or desalination.

GROUPS		SCOPE
A	Structures	Design or construction criteria and techniques for all structures associated with the development of water resources or the control of surface or ground water. Included are dams, locks, bridges, conduits, lined tunnels, floodwalls, water supply intakes, wells, pipelines, and storage reservoirs (earth and rockfill structures are under 08D: Soil mechanics).
B	Hydraulics	Studies on the static and dynamic behavior of water as it influences design theory for spillways, penstocks, conduits, tunnels, canals, riprap, breakwaters, floodwalls, and other similar structures; design of wells and well systems, including both collecting and relief wells.
C	Hydraulic machinery	Design and performance of hydraulic machinery and equipment, including gates, valves, pumps, turbines and similar facilities. Includes associated control facilities, generators, transmission systems and power system operation to the extent each is unique to problem of water utilization.
D	Soil mechanics	Design theory, criteria, techniques, and engineering properties of soils as related to the design, construction, and performance of cut slopes, earth foundations, embankments, and rockfill structures.

E	Rock mechanics and geology	Behavior of rock masses and rock foundations; engineering characteristics; structural properties of rock materials; design techniques applicable to foundations for large structures.
F	Concrete	Cementing materials, aggregates, and other concrete components; engineering characteristics of concrete construction methods and techniques.
G	Materials	Miscellaneous materials other than soil, rock, concrete and concrete components; detection, measuring, and material testing techniques and equipment. Areas included are: bituminous, chemical, synthetic, plastic or metallic materials; paints; materials corrosion where associated with structures for water control.
H	Rapid excavation	Mechanical, chemical, and nuclear explosive techniques and equipment for rapidly excavating and moving large volumes of earth or rock.
I	Fisheries engineering	Development of techniques and design of facilities to attract and pass fish past dams and other water control structures; methods for improving the design, maintenance, and functioning of fish spawning areas.

09 MANPOWER, GRANTS, AND FACILITIES

Support of education and training as an essential ingredient of water resource research programs as well as the planning and design of water development projects. This category also includes grant and contract programs for which allocation to other categories is impossible.

	GROUPS	SCOPE
A	Education - extramural	Support of education in water resources at universities (excluding research support allocatable to other categories).
B	Education - in-house	Government employee training programs.
C	Research facilities	Laboratories, field stations, or other.
D	Grants, contracts, and research act allotments	Allotments to university water resources research institutes under P.L. 88-379; OWRR, HEW, NSF, CSRS, and other grants which cannot be distributed to other categories in advance.

10 SCIENTIFIC AND TECHNICAL INFORMATION

Development of adequate manual or mechanized procedures for acquisition, storage, retrieval, and dissemination of scientific and technical information is a vital and an integral part of a successful research program. This category includes all separately identifiable activities involved in the handling of recorded knowledge resulting from basic or applied research in the water-related aspects of the physical, life, and social sciences.

	GROUPS	SCOPE
A	Acquisition and processing	Identification, acquisition, storage, or exchange of documents in full size or reduced form and the organization or arrangement of these documents for retrieval.
B	Reference and retrieval	Selected search and retrieval of an organized document collection in response to specific user request.
C	Secondary publication and distribution	Selective review, indexing, subject classification, coding, abstracting, announcing, listing or distribution of documents or their bibliographical surrogates to provide service such as current awareness or selective dissemination of information, abstract bulletins, and topical bibliographies.
D	Specialized information center services	Activities described under groups A, B, and C where performed by a separate functional element whose mission includes additional subject area technical competence to critically review, digest, analyze, evaluate or summarize scientific and technical information in specially defined areas, or to provide advisory and other services.

E	Translations	Conversion, to or from English, of scientific or technical documents in whole or in part, where performed as a separate or specific activity.
F	Preparation of reviews	Preparation of state-of-the-art critical reviews and compilation in specified technical subject areas, where performed as a separate activity exclusive of the output of groupd 10D.

APPENDIX C: SYMBOLS

ONLY THE FOLLOWING SYMBOLS MAY BE USED ON WRSIC FORM 102:

. , : ; ' / * $ % ( ) - + = ± < > Σ

Conversion Practices

ANGSTROM UNITS (Å)
Use A

CHEMICALS
H_2 SO_4 use H2SO4

CUBIC
cm^3 use cu cm or cc
ft^3 use cu ft
m^3 use cu m

DEGREES
32° use 32 degrees
32°F use 32 F
32°16'8" use 32 deg 16 min 8 sec

EXPONENTS
$x^{(n-1)}$ use x to the (n-1) power
$ft\ sec^{-1}$ use ft/sec
When the exponent is less than 7 and has the base 10, write out the number, e.g.
10^2 use 100
10^{-4} use 0.0001
2.75×10^{-3} use 0.00275
When the base is 10 and the exponent 7 or more, write out.
10^8 use 10 to the 8th power
10^{-9} use 10 to the minus 9th power

(See also CUBIC, SQUARE, SUPERSCRIPTS)

$2.4 \times 10^4 = 24{,}000$

$2.0 \times 10^1 = 20$

$7.2 \times 10^{-6} = .0000072$

$37 \times 10^6\ m^3 =$ 37 million cubic meters

C1

$4.0 \times 10^{-5} = 0.00004$

$3 \times 10^3 = 3{,}000\ ft^3/yr$

2.3×10^{-4} 0.00023

5×10^{-3} meters = 0.005 meters

FRACTIONS
Use the slash (virgule) for the fraction bar, e.g.,

$x = \frac{a-b}{c}$ use x=(a-b)/c

$x = \frac{a-b}{c}$ use x=a-(b/c)

GREATER THAN OR EQUAL TO (≥)
Use > or =

GREEK LETTERS
Use their names; e.g.,
α use alpha
β use beta

LESS THAN OR EQUAL TO (≤)
Use < or =

LOGARITHMS
$\log_{10}$ use log
$\log_e$ use ln

MICRO- (μ) and MICROMICRO (μμ)
μv use microvolts
μμf use micromicrofarads or picofarads

MICRONS (μ)
μ use micron
mμ use millimicron
μμ use micromicron
μc use microcurie

$2.7 \times 10^7 =$ 27 million

one million dollars = $1 million

every tenth year = every 10th year

sodium sulfate type

sodium-chloride

calcium-bicarbonate

see supplement GPO sec 6.42

calcium - sodium

↑ OK - both metallic ions

bicarbonate - chloride

GPO 12.9

A.D. 1350

1350 B.P.

ranges have two values

day^{-1} = per day

QUOTATION MARK "
Use the apostrophe (') except where the quotation mark is used to mean inch or second. In these instances, use the abbreviations "in" or "sec"

SQUARE
cm^2 use sq cm
ft^2 use sq ft
m^2 use sq m

SQUARE ROOT
$\sqrt{a-b}$ use square root of (a-b)

SUBSCRIPTS
V_1 use V sub 1
B_5 use B
(Omit the 5, which is the atomic number of boron.)
(See also CHEMICALS)

SUPERSCRIPTS
H^+ use H(+)
SO_4^{--} use SO4(--)
V^{5+} use V(5+)
U^{234} use U234
B^{10} use B10
O^{18} $(p,n)N^{15}$ use 018(p,n)N15
d_{23}^{25} use "density at 23 degrees referred to water at 25 degrees"
n_D^{20} use "index of refraction for 20 degrees and sodium light"
(See also CUBIC, EXPONENTS, SQUARE)

H^3 use H3

CO_2 - Carbon dioxide
N^+ - sodium
pH - hydrogen ion concentration
SO_4^{2-} - sulfate
$CaCO_3$ - calcium carbonate
‰ - salinity - use per mil
Si - silica
N - nitrogen
^{14}C = carbon-14
$NO3(-)-N = NO_3^- - N$ = Nitrate - nitrogen conc
$NH_4^+ - N$ = ammonium - nitrogen concentration

Underscoring

Do not use underscoring.

APPENDIX D: SELECTED BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

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