Annual

Environment Canada | Environnement Canada

Canada Centre For Inland Waters | Centre Canadien Des Eaux Intérieures

ANNUAL REPORT

Computer Services Section Support

Fiscal Year 1980/81

TECHNICAL REPORT NO. 03-AMD-T-9-81-CP

ANNUAL REPORT
Computer Services Section Support
Fiscal Year 1980/81

ANNUAL REPORT

Computer Services Section Support

Fiscal Year 1980/81

H.C. Pulley
Head, Computer Services Section
Analytical Methods Division
National Water Research Institute

4 May 1981

Annual Report of Computer Services Section Support - Fiscal Year 1980/81

During the past fiscal year, the Computer Services Section has again provided support to all components of the Canada Centre for Inland Waters. The accompanying tables provide details of this support and the changes in CYBER 171 system utilization during the first two years of operation. CYBER usage has increased by approximately 57% in the past fiscal year.

Table 1 indicates the distribution of support among the components of CCIW. NWRI branch is still the largest user,but examination of the fraction of support used by non-branch components during the past three fiscal years reveals a trend of increasing support requirements by these components.

Fraction of support provided to non-branch components:

1978/79	27.2%
1979/80	28.4%
1980/81	35.2%

Table 2 indicates support provided to Department of Environment National programs for all DOE components of CCIW. Information concerning the correlation between computer accounts and national programs was obtained from the NWRI Directory of Study Forecasts, 1980/81 and from managers in the other DOE components.

Table 3 is a detailed report of support provided to NWRI research studies. Once again, the services of the Section have been

utilized by over sixty research studies.

Table 4 is a comparison of CYBER 171 usage for the periods August 1979 to March 1980 and August 1980 to March 1981. This eight month interval was chosen to avoid the bias in usage statistics caused by the CYBER 171 installation in June 1979. By August of that year most program conversions were complete and users were sufficiently familiar with the new system to use it effectively. This comparison is quite revealing in the following areas:

a) Overall usage has increased by 57% in 1980/81;

b) Users are depending less on over-the-counter batch processing, with its emphasis on cards and printed output, and are utilizing the interactive capabilities of the system (program editing, terminal submission of batch jobs, interactive program execution, and job output file viewing) to an ever-increasing degree;

c) Users are performing increasing amounts of computation per job or session;

d) The use of magnetic tape as a processing medium is decreasing noticeably as users take advantage of on-line disk storage capacity of the CYBER. Tape continues to be used extensively as a long-term storage and backup medium.

This provides a strong indication that computer users at CCIW are taking advantage of many of the features of current computing technology.

. . . /3

Notes (Tables 1,2 and 3):

(a) Computer Services Section overhead amounted to $11,649. during 1980/81. This usage is not shown in the tables, so all support reported is that provided to CCIW.

(b) Usage by the Data Management and Engineering Services Sections in support of various components of CCIW has been reported as part of the usage incurred by those components.

Table 1: Overall Computer Services Support, Fiscal Year 1980/81

Component		Value of Usage ($)	Fraction (%)
NWRI Branch	Total	470,308	64.79
- ECD		24,394	3.36
- HD		99,163	13.66
- AED		59,191	8.15
- AP&SD		263,557	36.31
- AMD		5,703	0.79
- ECSG		131	0.02
- TOD		16,550	2.28
- Director's Office, Administration		1,519	0.21
Ontario Region, IWD	Total	58,177	8.01
- PRSA		1,408	0.19
- WPM		27,446	3.78
- WQB		29,330	4.04
Lands Directorate, EMS		5,331	0.73
Environmental Protection Service		23,176	3.19
Canadian Wildlife Service		847	0.12
External (non-CCIW) Support to DOE		36	0.00
Environment Total		557,875	76.85
Fisheries and Oceans	Total	168,071	23.15
- GLBL		18,442	2.54
- OAS Hydrographics		8,992	1.24
- OAS Research and Development		140,637	19.37
Non-NWRI Total		255,638	35.21
GRAND TOTAL		725,946	100.00

Table 2: Computer Services Support to DOE National Programs

Program	Value of Usage ($)	Fraction of Total (%)
Water Management Research	322,414	44.41
Canada/US and Interprovincial Waters	97,514	13.43
Toxic Substances	42,078	5.80
Water Pollution Control Problems Identification, Characterization, and Assessment (EPS)	23,176	3.19
Water Management Data	22,798	3.14
Support to Others (TOD)	16,650	2.29
International Relations	9,680	1.33
Eutrophication Studies (IWD/WPM)	5,978	0.82
Flood Damage Reduction	5,651	0.78
Shore/Coastal Zone Management	5,156	0.71
Land Resource Surveys	3,206	0.44
Ecological Land Research	2,125	0.29
Toxicity in Wildlife (CWS)	847	0.12
Administration (NWRI)	602	0.08
TOTAL	557,875	76.85

Table 3: Computer Services Support to NWRI, Fiscal Year 1980/81

Division	Study No.	Study Leader	Value of Usage ($)
ECD	213	K. Kaiser	560
	233	J. Maquire	464
	238	J. Carey	23,238
	260	R. Durham	132
HD	303	C. DeZeeuw	1,637
	304	G. Duncan	650
	305	N. Rukavina	3,028
	306	N. Rukavina	89
	308	J. Coakley	1,947
	312	Y.L. Lau	800
	315	Y.L. Lau	218
	316	B. Krishnappan	8,206
	318	B. Krishnappan	1,053
	335	J. Marsalek	65
	336	J. Marsalek	889
	341	H. Ng	9,603
	343	M. Skafel	629
	351	A. Zeman	2,575
	353	M. Donelan	22,699
	354	M. Donelan	33,200
	355	M. Donelan	5,986
	356	M. Donelan	4,137
	357	P. Engel	435
	373	M. Skafel	1,317
AED	410	R. Bourbonniere	1,632
	419	R. Sandilands	1,969
	422	S. Esterby	7,301
	424	S. Esterby	29,153
	431	B. Brownlee	419
	434	M. Charlton	1,384
	435	M. Charlton	132
	438	D. Lean	5,538

. . . /2

Division	Study No.	Study Leader	Value of Usage ($)
	441	F. Rosa	4,578
	444	H. Dobson	4,404
	477	S. Painter	2,678
AP&SD	501	D. Lam	48,657
	502	J. Simsons	1,712
	503	D. Lam	5,156
	504	E. Halfon	33,685
	505	A. El-Shaarawi	6,029
	506	R. Murthy	9,899
	507	P. Hamblin	550
	508	F. Boyce	15,685
	509	F. Boyce	7,452
	510	J. Bull	46,559
	540	R. Bukata	13,976
	541	R. Bukata	4,320
	542	A. Bobba	4,243
	571	W. Nagel	23,235
	572	R. Duffield	6,841
	573	H. Comba	12,365
	575	J. Rogalsky	8,763
	576	S. Beal	3,390
	582	B.Bennett/F. Elder	11,137
AMD	627	B. Dutka	671
	628	S. Rao	662
	646	V. Cheam	758
	647	K. Aspila	2,947
	652	K. Aspila	665
ECSG	701	J. Ford	131
TOD	505	B. Taylor	16,650

. . . /3

Division	Study No.	Study Leader	Value of Usage ($)
Director's Office, Administration	103	S. Barabas	917
	Library	E. Dowie	126
	Inventory	C. Hicks	476

Table 4: CYBER 171 Workload Comparison: Fiscal Year 1979/80 and 1980/81

Workload Parameters	Aug. 1979 - March 1980	Aug. 80 - March 1981	Change (%)
Number of batch jobs	33,689	30,090	- 10.7
Hours of batch central processor time	814	1,241	+ 52.5
Batch system resource units utilized	3,737,375	5,867,647	+ 57.0
Number of interactive sessions	26,098	30,237	+ 15.4
Hours of interactive central processor time	83	133	+ 60.2
Hours of interactive connect time	7,819	9,130	+ 16.8
Interactive system resource units utilized	329,056	616,544	+ 57.3
Cards read (thousands)	5,832	3,128	- 46.4
Lines printed (millions)	68.7	53.9	- 21.5
Cards punched (thousands)	693	348	- 49.8
Magnetic tapes mounted	18,050	11,325	- 37.3
Average CPU seconds per batch job	87.0	148.4	+ 70.6
Average central memory words per batch job (thousands)	29.4	34.4	+ 17.0
Average CPU seconds per interactive session	11.4	15.8	+ 38.6
Average central memory words per interactive session (thousands)	14.3	14.8	+ 3.5
Average connect time per session (minutes)	18.0	18.1	+ 0.6
Total central processor hours	896.5	1,373	+ 53.2
Total system resource unit usage	4,129,432	6,484,191	+ 57.0
Fraction of batch jobs submitted as card decks (%)	61.0	41.9	- 31.3
Fraction of batch CPU time used by jobs requiring magnetic tapes (%)	39.6	13.3	- 66.4

Note: The "system resource unit" is a measure of all aspects of CYBER utilization (central processor, memory and peripheral input/output) and is a more accurate indication of system activity than central processor time alone.

9833