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Spanish Council for Scientific Research Marine Sciences Library (Cádiz, Spain)

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CSIC Marine Sciences Library (Cádiz, Spain):

Enrique Wulff

Collection Description.

The library was created, in 1957. The first best books incorporated to the holdings were basically French and coming from the 'Actualités scientifiques et industrielles' (1937) collection and the 'Bibliothèque Scientifique Internationale' (1949). Of special interest for oceanographic purposes, and because of the institute expeditions along the African littoral, in the late fifties, are the publications of the Institut Français d'Afrique Noire (IFAN, Dakar). 'Poisson de mer du Sénégal' (1950) being the most useful book. Enquiries about plate-books would also focus on an initial French presence: an atlas of fishes from the Algerian littoral produced in Alger (1956). The first Spanish book located at the library is the 'Manual práctico de piscicultura' by Mariano Graells (1864).

By way of leading into the library, the collection built around the Spanish representative at the World Scientific Meeting on the Biology of Tunas, and Related Species (FAO, ICES), in the period 1957-1985 (that served as director of the Institute), must be examined. Similarly the International Commission for the Conservation of Atlantic Tunas, and the International Commission for the Northwest Atlantic Fisheries publications are well represented and useful documents on the shelves.

An outstanding series of doctoral dissertations is maintained updated from 1975. In most cases they come from the Universities of Seville, Cádiz and Granada, although some form part of the French campus. Finally special relevant results refer to the Doñana National Park Aznalcollar catastrophe. Commercial resources available on aquaculture, and marine chemical investigations examining the Gulf of Cadiz and the Estuaries behaviours reap the benefits in terms of bibliographic production.

The resources are relatively developed in the crustacean. The ambitious scientific community, working with the library in this area, comprise almost all Spanish patrons and active members of the Crustacean Society, reviewers of the journal of the Society, and members of the editorial board of Springer's publications. So the adherence to the plans of this team, of the books in the collection, is quite fitting. Like the journal authored at the Institute (1994-1999), the journal *Zoea* (ISSN 1133-9098), comes from this laboratory (in cooperation with the University of Seville), and is owned by the library.

Marine chemical and Aquaculture novelties (congresses and Andalusian products) are basically intended to be used in the postdoctoral courses (microalgae and pathology) at the Institute. They are also open to potential users coming from undergraduate courses in the university or contributors to marine science with free entrance to the library guaranteed. 45% of the staff is involved in aquaculture activities and Andalusia offers the best industrial panorama in the area. Therefore Andalusian government publications are heavily represented in the library, and the regional editorial business is also an arena for most of the users of the library.

The production of books authored at the Institute come basically from the Ichthyological laboratory. The early stages of fishes in the bay of Cadix and a strategic vision of the Doñana National Park are the main topics. In terms of giving 'food for thought' content, several books with the results of one of the two postdoctoral courses learned at the Institute have been published, both in Madrid and in Cadix.

The total re-thinking of the scientific papers could be retraced to the oldest journal collection in the library. From the personal observations made fashionable in the XIX century to the style responding to the change of Millennium, the oldest journal in

the library, the '*Journal of the Marine Biological Association of the United Kingdom*', is almost complete starting with vol.II issued on May, 1891. The economics of journal publishing also becomes evident looking at the editorial fate of the *Bulletin of the Spanish Royal Society on Natural History* (ISSN 0366-3272), starting on the shelves in 1903, and showing telling gaps. The first Spanish scientific journal admitted into the library the '*Annals of the Spanish Society on Natural History*', was published in 1887 and included a paper on a new species (*Ectocarpus lagunae*) from the coast of Cadix.

The collection of Latin American, African and Asian serials material applies to the past competencies in international fisheries organisation. Specially appreciated were the data from North-African countries, and regular series of statistics could be extracted from the Tunisian, to the Sierra Leone area journals. A continuing presence of Portuguese material is assured through donations, in the framework of interchange between the programs of the University of Algarve and the Puerto Real (Cadiz) campuses. And some causal incorporation do afford for the supply of Latinoamerican journals, and memos.

To sum-up the subject of non-book material. The nautical charts refers mainly to the Gulf of Cadiz and Gibraltar sea and the historical charts used on the African oceanographic expeditions performed in the fifties and sixties are conserved. A **CdRom** collection offered to private industry in the area, scientists in the labos and general users concentrate resources where the French oceanographic results in the Pacific ocean are available, World biodiversity databases (UNESCO) are able to be consulted, Iberian congresses on toxicology proceedings can be read and downloaded and the continual education needs for fishery professionals can be satisfied. Special mention requires the complete CdRom edition of the bilingual (Spanish-English) *Ciencias Marinas* (ISSN 0185-3880, included into the ISI database), published at the Baja California Autonomous University, storing all the original presentations in a database-format into two CdRoms; the European editor of this journal is a professor learning at the Campus. A video of *Icman* is also available in CdRom format. The **Video & DVD collection** seeks to credit the library usage of the tv monitor available in the hall of the Institute, but all the videos & dvd are able to be lent and available via the general automated catalogue. Special examples of the collection are the Crete Institute of Marine Biology video, the Marine Laboratory of Aberdeen device, and the Scripps Institution of Oceanography engines. Some Andalusian continuing education resources by fishery administrators are also available in video-format.

Among the librarians running the collection, in the interest of project prosecutors, the main work has been the elaboration of an enormous catalogue resulting from the indexing of the International Council for the Exploration of the Seas (ICES) working papers. Card retrieval tools were designed both under subject and topological criteria. It is not yet automated.

The challenges managing marine science information and data: database policy and international activity.

Laziness is not always the excuse for avoiding the traditional library. Getting a book out of the library of the Spanish Council of Scientific Research at Puerto Real, Cádiz (Spain), is an option to the 250 holders of library cards in the campus (a Sea Sciences Faculty, a Naval Faculty, and a Faculty of Sciences (Chemistry and Mathematics), plus the Research Council Institute), but in fact, the new effort to build an electronic library

is not about reading at all, it is about the power of electronic searching. The motivation to implement a device acting as a driver regarding access to and the use of data for marine research, in Puerto Real, is challenged by the Institute museum of fishes database, the crustacean decapoda in the Gulf of Cádiz database, the microalgae collection database. The deep interest into the question of actual access to these data, the quality of the data found and the data standard used has attracted several international, European and Asian authorities. The presence of the library has been tested in librarians and information specialists at the National Centre for Marine Research (Athens, Greece), the Tsukuba Science City (Japan), the Academia Sinica (Taipei), the Ifremer (Brest, France), the Institut für Meereskunde (Kiel, Germany), the FAO Fishery Library (Rome, Italy), the Institute of Marine Science (Portland, Oregon, USA) or the Institute of Southern Seas (Ukraine), in the period 1998-2007. The International Council of Scientific Unions Committee on Data for Science and Technology (ICSU, CODATA) has been involved, and the Euraslic Newsletter (ISSN 1560-5299) October 2000 issue has reported on it.

The Librarian is the European Association of Aquatic Sciences Libraries and Information Centres (EURASLIC) National Representative for Spain and acted as a member of its board in (2003-2008); also a member of the International Association of Aquatic Sciences Libraries and Information Centres (IAMSLIC). Pleasingly, the early history of the Institute has been considered, at an Spanish History of Science Professional Meeting (1999), based on a record authored at the Library; also a contribution was presented along the VIII International Congress for the History of Oceanography "The History of Oceanography in the Mediterranean", Naples, Italy, 26 – 29 June 2008.

With respect to the bibliographic production of the labos in the Institute a database is available approaching to the nineties complete résumés of all the scientists at work in the station. And the lean production concept to optimise the use of these resources is the digital thesaurus. And a paper can be downloaded on it from:
<http://www.ucm.es/BUCM/revistas/inf/02104210/articulos/DCIN0404110289A.PDF>.

This is an overall map of the library activities trying to fuse all the informative perspectives developed in the past 1998-2007 period. As a consequence, and because all the previously mentioned material is elaborated under the data management framework of Dublin Core meta-information, an specific access to the digital objects of the library of icman is previewed from RedIris (R+D Spanish academic network), at www.rediris.es/si/iris-index/coord/contact.es.html.

Considerable effort and care were required while designing and analyzing the databases because of variability in the information the contributing corpuses had supposed, as well as how the information had been collected, organized and stored.

A general paper was published by the British 'Managing Information' available from: <http://www.managinginformation.com/Catalogue/contentsmarch2002.htm>. (included in the database LISA : Library and Information Science Abstracts, Access Number 123235. http://www-md1.csa.com/ids70/view_record.php?id=2&recnum=7&SID=7dhtfur1e4be1vohqc8a5k1293).

The last activity of the library refers to the attendance at the Communia (European Thematic Network on the Digital Public Domain) 2008 conference (University of

Louvain-La-Neuve, Belgium, June 30-July 1, 2008). And for the next course 2008-09 an approved funding from the Andalusian Regional Government to support a meeting at the ICMAN of the Members of the Mediterranean Network of Marine and Aquatic Sciences Libraries (Med SIG group) was appointed in 2008 April.

Services offered by the library.

The standard main publications in the area of marine sciences are available, monitored through the search facility of the ALEPH (Automated Library Expandable Program Hebrew) installation at the Library Coordination Unit of the Spanish Council for Scientific Research (CSIC), in Madrid. It houses approximately 2130 volumes which include reference books such as encyclopedias, dictionaries and manuals. Presently, the Library has subscriptions to 21 journals, and 53 are active journals (by including those obtained through donations). And 396 journal collections more are kept in the holdings. The electronic records to be produced have to meet the requirements for recordkeeping in public administrators supplied by the ALEPH. The complete automation of the collection of books, journals, and non-library materials through the ALEPH engine installed in Madrid, is able to be consulted at: <http://aleph.csic.es>, advanced search option, by choosing the name of the Inst. CC Mar Andalucía from the menu. To provide better services, the library is a member of the European and the International Association of Aquatic and Marine Science Libraries and Information Centres (EURASLIC-IAMSLIC).

The Joining and Using the Library Service, refers to the initial contact between the new user and the librarian. It includes the opening of a user card, and an introduction to the ALEPH search facility, the basic lending instructions and the management requirements to demand photocopies and external material. Also an explanation is offered on the CSIC virtual library, the PAPI service as a support to the research and teaching activities performed by the internal users (staff of CSIC), and the CSIC repository. The library has some 450 annual users.

The **Reading Room service** includes the free access to the holdings for those users belonging to the CSIC staff, and the providing of the inhouse materials to external users through the librarian. Also the reprography of the library's materials by requesting it to the officer in charge and paying for it. Some 80 new books are annually offered to the readers.

The **reference and bibliographic information** includes the access to the catalogues of the CSIC Library Network by making use of the automated catalogue at: <http://aleph.csic.es>. The reference and bibliographic information consultations required by any media (personally, through email, by phone, etc.). The basic database used to supply these information is ASFA (Aquatic Science and Fisheries Abstracts), at reach through the CSIC virtual library (<http://metalib.csic.es>). Also information offered through web portals, intranets, etc. *oneFish Knowledge Objects* are much used, <http://www.onefish.org>. Users training introduction courses have been offered this past academic year 2007-08, online from the library by using the electronic campus (<http://campus.aqcen.com/>). The tutorial material from the CSIC Network of Libraries is joined to the new user documentation.

The **personal loan** service provides students and staff of the Institute access to books and other reading list materials. There is an easy and quick automated service available for personal loan transactions managed by the librarian. A manual card file is maintained with the current loans, that can be checked by the readers in case they opt to reserve their required library materials. 68 personal loans were managed on past 2007.

The **interlibrary lending and document access service** is based in the free broadband access is offered to all users and to all CSIC library residences. Users are required to use by themselves the automated interlibrary lending and document access service offered by the CSIC owned ALEPH software. Once automatically received by the librarian, the demands are processed and the materials retrieved in a brief delay. On the past 2007, 158 requirements were formulated from the library, and 104 were received from other libraries (CSIC and external demands).

The **remote access to electronic information resources service** guarantees the employ by the users of the CSIC Virtual library and attached tools (PAPI, SFX and Metalib), by making use of the user card numbers. Also the use of the CSIC digital repository is encouraged. As public library the range of services used through the internet is not charged, and printing, downloading and additional software facilities are offered without restriction to potentially interested users.

The **service of institutional repository (Digital.CSIC) and archive** is focused on the accomplishment of the instructions sent through email by officers at charge in Madrid. An active policy of stimulation to the supply of material produced at the Institute and its digital deposit in the institutional CSIC repository is prosecuted by the library. The Institute Archive is a relatively unstructured collection of documents in need to be provided with facilities for management. User's perspectives are sufficient to justify the coordination of efforts aimed at the production of a global view over the archive. It encloses the behind the ICES scene Cadiz CSIC Institute scientists participation into steering committees (Scombridae) of the Food and Agriculture Organization of the United Nations meetings (1962) on the biology of tunas, and they attend to the International Commission for Scientific Exploration of the Mediterranean Sea Meetings.

Prospects.

The Library of the Marine Sciences Institute of Andalusia renews its installations as a result of the opening of a second building for the Institute. The reading needs of its users are to be satisfied with a new reading room. The plan consist in supplying eight new reading posts to the users, each one with a computer an s a total expenditure of 4000W. Natural lighting will be used at maximum to get use of reading and writing facilities, the artificial lighting will fit scientific criteria in order to produce a minimum of neglected areas and a maximum of diffused light. The room will have 30 m² and a height of 3 m. The entrance access will be at the corridor of the hall stage. The current holdings site will stay. The new space will hold special furnitures for maps, non-bibliographic material, heavily used books, and the fish museum.

Selective advantages

1.- Surveillance of the professional literature.

Bimonthly all labos in the Icmán, in the Campus Río San Pedro, and those connected through RedIRIS by the Marinet community of oceanographers (American and European Spanish speaking community), receive a detailed analysis of the Spanish scientific production as published in the journals, books, cd.roms, dvd, ... received at the library.

2.- Convergence in international professional organisations.

The library professional design spreads its work through Iamslic and Euraslic. The international and European associations for information centers and libraries in marine science. Resource costs are assigned by the Icmán to this goal. Subsidies are obtained from governmental bodies with this purpose.

3.- Direct involvement in the data world.

The library has been subvended several times by CODATA (ICSU), to attend international meetings in the data for science initiatives. Specific databases in marine sciences have been elaborated at the library and the Icmán is in the nucleus of the Spanish committee for CODATA after these activities of its library.

Strategy

General goal:

To enhance the amount of use of the resources offered by the Library through the optimization of the levels of satisfaction of its services, in the context of the new reading room to be opened.

Concrete goals:

Scientific objectives: The thematic involvement of the library in the digital public domain. In the marine sciences open access policies the library should manage to incorporate online as many materials from its holdings as possible. An FTP device oriented to the dissertations produced at the Icmán downloadability could be a case, easily extrapolable to the inclusion of the maps in the Regional government virtual library. All the services can profit from next attendances to forums in this area.

Training objectives: The involvement of the Librarian as a teacher in the documentation training area, should result in more relations that could increase the library possibilities. In those areas where detailed training requirements are in need, a number of new questions on increasing levels of transactions and satisfaction ratings are to be surveyed.

Divulgence objectives: To achieve the library objective of increased divulgation present a case for increasing budget. The new reading room should result in a system of measures about users that will yield data at appropriate time intervals.

International objectives: The distance of some users from the library requires different response mechanisms. Competition from other sources make some readers prefer the Icmán library. Understanding this should result in providing relevant management information tools. The associationism in international professional teams, the participation in the open access meetings and public digitalization forums, and the collaboration in the data for marine science initiative make part of the library international activities.

Common services: the current services of the library are the joining and using the library service, the reading room service, the reference and bibliographic information, the personal loan service, the interlibrary lending and document access service, the remote access to electronic information resources service, and the service of institutional repository (Digital.CSIC). Increasing of satisfaction with timeliness and quality will affect the number of transactions and this is to be applied as a goal of the Library.

Gender equality: A main issue that could depend on many factors. With the new installations the Library arrange in the pattern which makes the most sense of equality by offering more reading posts to their users.

Quality programs: the library pursues the required quality programs established by the transactions in which it is involved. On behalf of CSIC library networks the journals subscription contracts are regularly evaluated by keeping updated the information on issues received. The cataloguing quality procedures are prosecuted through the internal control verifications. Assignments of quality certificates have been received in several occasions, coming from directories such as Marquis who's who, or Cambridge international biographical centre.

Management: The objectives are to the parent organization CSIC Library Network. The library should have a web page like the one available from its reference center the Hellenic Centre for Marine Research Library (http://www.hcmr.gr/english_site/library/index.html).

Efficiency: The objective are in the ongoing evaluation trends as measured by the missions of Icmán and services of CSIC Library Services. A system to moderate the effects of the competitor center, the IEO Library services (<http://www.ieo.es/biblioteca.html>) should be provided. Models and methods coming from the National Oceanographic Centre Library, Southampton (<http://www.noc.soton.ac.uk/nocs/library.php>) as a collaborator center in a future active policy of digitalization of the holdings could be useful.

Self-financing: The library have maintained a policy of self-financing when involved in the area of marine data management through the organism CODATA. What has resulted in active fulfilment of financial CODATA requirement by the Institute by paying for registration in CODATA congresses. The Library is searching for more financial support from the Ministry to meet the objectives of Spanish CODATA committee.

SWOT analysis report

It is necessary to know the extent to which all resources in the Marine Sciences Library (CSIC, Cádiz) are applied to a service. Then, the amount of all resources applied to services can be converted into a common unit, which is money or funds.

The matrix shown below is a SWOT (Strengths, Weaknesses, Opportunities and Threats) Matrix which makes one of the key factors in the whole process of strategic planning for this library.

STRENGTHS

Collection: Quality, and Accessibility. On quality of the collection, the holdings scope – what covered, comprehensiveness – and the corresponding how well covered estimations are purposely oriented. The accessibility, open vs closed stacks, remote, etc. fill average use /level of satisfaction.

Rich experience in reference and information service searching various databases. Users are reported, periodically, with an emailed list on the amount of resources recently absorbed by the library. The main database in Marine Sciences, ASFA, is currently accessed (their officers visit the Institute). The professional international societies Euraslic and Iamslic secure, on a free of charges basis, information delivery.

A bird's-eye view to the present state of information in marine science disciplines and subjects is supplied by providing online education from the library and through the attendance to national and international meetings.

WEAKNESSES

Facilities: the total space in square meters is very scarce. The holdings can be damaged and the growth of the collection is collapsed.

Collection: Availability and Acquisition. The extent of use requires a second librarian at work in the afternoon. Events associated with the acquisition of specific tems (ie, monographs, serials, etc.) should depend on the librarian work.

Web page: Allocated staff time for the specific library needs should be more extensive.

OPPORTUNITIES

Open access to marine science information.

The location of the library inside the new 'Las Aletas' area.

Multidisciplinary approach.

Higher costs to use commercial databases

THREATS

A capable competitor, the IEO Library services.

End-user services. Trained users personally organize their information needs management.

Decrease in the quality of marine science databases indexation.

By elaborating this matrix we realize the present position of this library.

Relational analysis

To present the converging and diverging information environment required by the library this matrix reveal the essential centers needed to locate vastly expanded information sources and skills for print and digital literacies.

REFERENCE CENTRE:

the Hellenic Centre for Marine Research Library

http://www.hcmr.gr/english_site/library/index.html

COMPETITOR CENTRE:

the Spanish Institute of Oceanography Library

<http://www.ieo.es/biblioteca.html>.

COLLABORATOR CENTRE:

The National Oceanographic Centre Library, Southampton

<http://www.noc.soton.ac.uk/nocs/library.php>

So grouped the centres could help to determine the priority ranking of resources consumption and to further analyze the contribution of the resource deserved

LIBRARY SERVICES CATALOGUE AND SERVICE UNITS (SU)

2003

The **Reading Room** service

Reading Room – free access holdings consultation and those served by the staff of the library – 100 SU

Reprography of the library holdings at charge of the user as selfservice and by the staff of the reprography service - 50 SU

The **Personal Loan** service

In-house books personnel loan service – 27 SU

The **Interlibrary Lending and Document Access** service

PI item, inner or CSIC provided = 105 SU

PI item, Spain = 58 SU

PI abroad item or monograph =

PI abroad user =

PI monograph = 12 SU

The **Reference and Bibliographic Information** service

All-kind bibliographic information and reference consults (presential, electronic mail, phone) – 100 SU

Information offered through selective information dissemination, virtual communities in the area, the web page, intranet, etc. – 100 SU

Users training;

Remote Access to Electronic Information Resources service

Electronic resources access: OPAC CSIC, Virtual Library, PAPI, SFX and Metalib.

The service of **Institutional Repository (Digital.CSIC) and Archive**

2004

The **Reading Room** service

Reading Room – free access holdings consultation and those served by the staff of the library – 100 SU

Reprography of the library holdings at charge of the user as selfservice and by the staff of the reprography service - 50 SU

The **Personal Loan** service

In-house books personnel loan service – 25 SU

The **Interlibrary Lending and Document Access** service

PI item, inner or CSIC provided = 92 SU

PI item, Spain = 42 SU

PI abroad item or monograph =

PI abroad user =

PI monograph = 26 SU

The **Reference and Bibliographic Information** service

All-kind bibliographic information and reference consults (presential, electronic mail, phone) – 100 SU

Information offered through selective information dissemination, virtual communities in the area, the web page, intranet, etc. – 100 SU

Users training;

Remote Access to Electronic Information Resources service

Electronic resources access: OPAC CSIC, Virtual Library, PAPI, SFX and Metalib.

The service of **Institutional Repository (Digital.CSIC) and Archive**

2005

The **Reading Room** service

Reading Room – free access holdings consultation and those served by the staff of the library – 100 SU

Reprography of the library holdings at charge of the user as selfservice and by the staff of the reprography service - 50 SU

The **Personal Loan** service

In-house books personnel loan service – 30 SU

The **Interlibrary Lending and Document Access** service

PI item, inner or CSIC provided = 194 SU

PI item, Spain = 2 SU

PI abroad item or monograph =

PI abroad user =

PI monograph = 54 SU

The **Reference and Bibliographic Information** service

All-kind bibliographic information and reference consults (presential, electronic mail, phone) – 100 SU

Information offered through selective information dissemination, virtual communities in the area, the web page, intranet, etc. – 100 SU

Users training;

Remote Access to Electronic Information Resources service

Electronic resources access: OPAC CSIC, Virtual Library, PAPI, SFX and Metalib.

The service of **Institutional Repository (Digital.CSIC) and Archive**

2006

The **Reading Room** service

Reading Room – free access holdings consultation and those served by the staff of the library – 100 SU

Reprography of the library holdings at charge of the user as selfservice and by the staff of the reprography service - 50 SU

The **Personal Loan** service

In-house books personnel loan service – 30 SU

The **Interlibrary Lending and Document Access** service

PI item, inner or CSIC provided = 71 SU

PI item, Spain = 2 SU

PI abroad item or monograph =

PI abroad user =

PI monograph = 26 SU

The **Reference and Bibliographic Information** service

All-kind bibliographic information and reference consults (presential, electronic mail, phone) – 100 SU

Information offered through selective information dissemination, virtual communities in the area, the web page, intranet, etc. – 100 SU

Users training;

Remote Access to Electronic Information Resources service

Electronic resources access: OPAC CSIC, Virtual Library, PAPI, SFX and Metalib.

The service of **Institutional Repository (Digital.CSIC) and Archive**

2007

The **Reading Room** service

Reading Room – free access holdings consultation and those served by the staff of the library – 100 SU

Reprography of the library holdings at charge of the user as selfservice and by the staff of the reprography service - 50 SU

The **Personal Loan** service

In-house books personnel loan service – 68 SU

The **Interlibrary Lending and Document Access** service

PI item, inner or CSIC provided = 92 SU

PI item, Spain = 38 SU

PI abroad item or monograph =

PI abroad user =

PI monograph = 26 SU

The **Reference and Bibliographic Information** service

All-kind bibliographic information and reference consults (presential, electronic mail, phone) – 100 SU

Information offered through selective information dissemination, virtual communities in the area, the web page, intranet, etc. – 100 SU

Users training;

Remote Access to Electronic Information Resources service

Electronic resources access: OPAC CSIC, Virtual Library, PAPI, SFX and Metalib.

The service of **Institutional Repository (Digital.CSIC) and Archive**

Relative Efficiency.-

	2009	2010	2011	2012	2013
SUs	600	650	680	700	710
Costs	1000	1006	1012	1018	1020
Real efficiency calculation	$600 / 1000 = 0.6$	$650 / 1006 = 0.64$	$680 / 1012 = 0.67$	$700 / 1018 = 0.68$	$710 / 1020 = 0.69$
Real efficiency	0.6	0.64	0.67	0.68	0.69
Relative efficiency calculation	$0.6 / 0.6 = 1$	$0.64 / 0.6 = 1.07$	$0.67 / 0.6 = 1.11$	$0.68 / 0.6 = 1.14$	$0.69 / 0.6 = 1.16$
Relative efficiency	1.00	1.07	1.11	1.14	1.16