

## Draft Strategic Plan for SciColl

### Mission Statement

SciColl is an international initiative devoted to increasing the benefits that object-based scientific collections and their associated information produce for scientific research and some of the major challenges facing society. SciColl's dual mission is to:

- help scientific collections and their host institutions increase their effectiveness and the return on investment from the long-term management of collections
- catalyse ground-breaking interdisciplinary research that relies on access to scientific collections and their associated information.

SciColl pursues this mission by:

- Providing an international coordinating mechanism that will enable and energize collaborations across the scientific disciplines that rely on object-based scientific collections, including but not limited to anthropology, archaeology, biology, biomedicine, and the earth and space sciences;
- Identifying and opening new and exciting areas of research that rely on scientific collections and their associated information distributed across disciplines and countries;
- Creating unprecedented access to collections and their associated information in different scientific disciplines;
- Increasing the impact that scientific collections and their associated information have on fact-based policy development; and
- Raising the community standards of specimen curation, collection management, and the training of collection professionals...

SciColl is built on the following foundational principles:

- Object-based scientific collections and their associated information are global public goods. Free and open access to scientific collections by qualified researchers is fundamental to achieving research excellence;
- Scientific collections are an essential infrastructure for many research disciplines;
- Scientific collections are a distributed asset, housed in institutions around the world. No one country can provide the collections and trained collection management staff needed by a research community. International and interdisciplinary cooperation is therefore essential in providing research communities in different countries with the access to collections that they need;
- International coordination of collections can reduce duplication of effort among collections and unnecessary expenses, and can optimize the impact of new collecting efforts by identifying critical gaps.
- Spreading of excellence in collections management and the training of collection professionals is needed to redress the imbalance between collections held in industrialized and developing countries.

## **What are Object-based Scientific Collections ?**

“Object-based scientific collections” are objects of study and their associated data and archival material that are used for scientific research and have been accessioned into repositories for long-term preservation. They are the research specimens in public institutions that have been judged too valuable for future research to be discarded at the end of a research project. In addition, specimens that are owned by private collectors, or are proprietary industrial property, or are classified government assets can have significant research potential. Examples of scientific collections would include but are not limited to research in biology, earth and planetary sciences, anthropology, archaeology, ethnology, biomedicine, and in applied fields such as agriculture and environmental protection.

Like the large instruments that form the infrastructure for many branches of the physical sciences (e.g., astronomical telescopes, particle accelerators, superconducting magnets), scientific collections are critical for the conduct of research in many fields. Unlike large research instruments, object-based scientific collections are physically distributed around the world. The responsibility for stewardship of these critical research resources is decentralized and distributed among the institutions, disciplines and countries associated with each collection. The research communities associated with these collections are dedicated to providing qualified scientists with access to specimens in the collections and to the open and equitable sharing of the knowledge and benefits obtained from their study.

## **The Need for International, Interdisciplinary Coordination of Scientific Collections**

Scientific collections form a research infrastructure that is critical to scientific research in many fields. Within each discipline, new types of collections have emerged in response to new research opportunities (e.g., the Age of Exploration; the Space Age; current bio- and nanotechnology) Hundreds of millions of specimens accumulated in thousands of collections, each contributing to a growing body of scientific knowledge..

At the same time, the barriers to accessing them also grew. Collecting and studying new specimens was/is often a higher priority than documenting, curating, and preserving the specimens in existing collections. Scholars in a discipline could have a good understanding of the collections in their respective fields up until the mid-20<sup>th</sup> century, but that soon changed. The post-war explosion of publicly-funded research led to the rapid growth of collections in all fields, but was not matched by improved methods in record-keeping. In the computer age before the 90s, collections and their associated data had become an enormous but largely undigitized treasure trove. Knowledge of and access to specimens within a research community had become difficult, and access across disciplinary boundaries was essentially non-existent.

Over the past 20 years, significant progress has been made toward documenting collections and improving access within disciplines. The steady growth of digitised specimen and related observational data is increasingly revealing new patterns and allowing new questions to be addressed. Local specimen databases have sprung up, data standards have been established, networks of databases have flourished, and community standards that promote public data access are taking hold.

Access to specimens and data within fields has now improved to the point that we can now see a new and larger research opportunity – and an obstacle blocking the way forward. We now see that collections in different disciplines are complementary in the scientific impact they can have. The greatest research challenges before us are interdisciplinary in nature, requiring collaborations that cross traditional boundaries. The deep-sea cores, ice cores, and fossil plants, animals and microbes that are stored in collections all give testimony to the changes that have taken place on earth. Anthropological artefacts, ice and sediment cores, biomedical samples and samples of biodiversity all contribute to our knowledge of human history.

SciColl was envisioned as the first step toward enabling international, interdisciplinary research based on collections and collection-based information that are currently isolated from each other.

## Coordination and its Benefits to Collections

Removing the barriers to interdisciplinary access and interoperability will have an important beneficial side-effect. Each of the communities that maintain scientific collections has confronted similar challenges, including but not limited to documentation, standardization, specimen curation and preservation, and the training of a specialized collection-based workforce. In addition to promoting a new generation of interdisciplinary collections-based research SciColl will enable exchange across disciplinary boundaries of:

- Information, policies, experiences, and standards related to the management of collections and their associated information;
- Skills, tools, systems of training used by collection workforces;
- Benchmarks of success and systems of self-assessment that can be used by collections;
- Other lessons learned that can be of mutual benefit; and
- Methods of digitisation and data capture.

## Strategic Objectives, 2010-2013

SciColl's Governance Plan includes a three-year start-up phase of activities led by a limited number of member institutions with support from their national governments. Following this start-up phase, membership would expand and revenue sources would shift to membership fees and project-based funding.

By 2013, SciColl plans to:

- *have engaged the major stakeholders* in each of the disciplines that rely on object-based scientific collections (professional societies, associations of collections, and the institutions with stewardship responsibilities for the collections in each discipline);
- *have demonstrated the potential research impact* of international coordination;
- *have created an inventory* of the major collections across disciplines;
- *have defined the major management and training issues* related to object-based scientific collections that are shared internationally and across disciplines;
- *have initiated an international and interdisciplinary knowledge base* consisting of studies, reports, guidelines, policies, benchmark data and other information resources related to the management of object-based scientific collections;

## Long-Term Objectives, 2010-2020

- *Generate world-class research initiatives* that take advantage of scientific collections internationally and across disciplines and can obtain independent support;
- *Raise awareness and support* for object-based scientific collections as part of the essential infrastructure for research, alongside astronomical observatories, particle accelerators, satellites and major databases;
- *Promote greater sharing and access* to scientific collections and their associated information;
- *Offer a forum* for the ongoing discussion of international, interdisciplinary research opportunities involving scientific collections;

- ***Provide the organizational structure for improving collection management and training*** in the participating disciplines through networks, working groups and special task forces;
- ***Promote the growth of new types of collections*** that will be essential to next-generation research;
- ***Provide advice and technical assistance*** to developing countries that are establishing new collections; and
- ***Provide an interface*** between collection-based science and broader societal issues.
- ***Improve standards curriculum, and training opportunities for professional and paraprofessional training in*** specimen curation and management of scientific collections that is parallel to the art preservation community;
- ***Promote the development of tools for self-assessment*** that scientific collections could use to judge themselves relative to standards of community practice
- ***Generate benefits*** to participating institutions and disciplines in the form of increased efficiencies and cost-savings; improved access to collections and their associated information; increased use and impact of collections for science and society; and improved support for collections by institutions and the public;

### **Program of Work, 2010-2013**

Promoting collection-based science:

- Raise awareness of value/impact of collections
- Working Group devoted to developing/incubator for new research programs
- Think-tank/Institute of Advanced Studies/Synthesis Center to assemble

Coordinating a 'pioneer' research project on an interdisciplinary topic selected by the Executive Board by:

- Preparing and submitting proposals for funding
- Organizing and conducting exploratory planning workshops
- Coordinating the construction of a knowledge base of collections that can contribute to research in the selected interdisciplinary topic

*The current proposal, which would need to be validated by the future Executive board, would focus on how scientific collections can contribute to our understanding of global environment changes.*

Networks/Working Groups for:

- Management of collections (best practices, self-assessment, workforce training)
- Access to collections (data standards, physical access)
- Methods (science of collections, development of new techniques)