

*November 17, 2015*

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# Research Data Management Services at UPEI

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Mark Leggott  
University Librarian

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# Background

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- ❖ 3,900 FTE
- ❖ \$13-17 million extramural research support annually
- ❖ Library receives a share of Indirect Costs
- ❖ Since 2006 much of this invested in RDM services
- ❖ Included development of Islandora project, an open source framework used all over the world

“The coolest thing to do with your data will be thought of by someone else.”

*CRIG: Common Repository Interface Group*

# UPEI Commitment

“Will steward research data for as long as is necessary.”



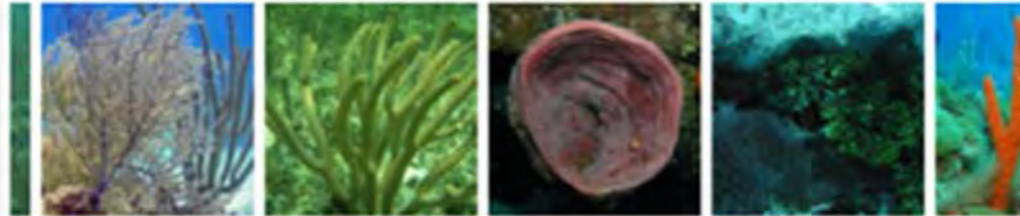


UNIVERSITY  
of Prince Edward  
ISLAND  
Marine Natural Products Lab  
Kerr Research Group

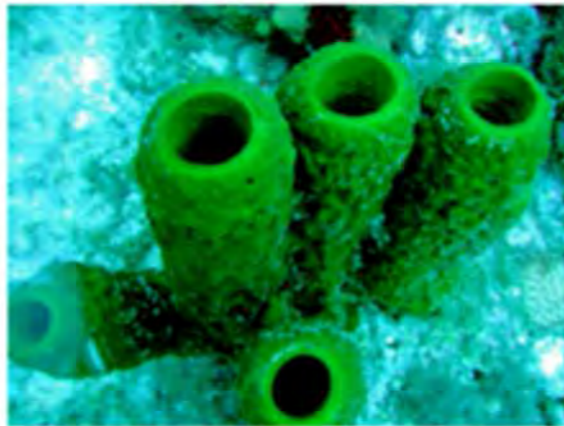
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## Kerr Research Group - Marine



The Marine Natural Products Lab projects broadly directed a marine microbial library. diversity of unique marine molecular methods to pathways. The lab enjoys foreign industry partners government research group



Research environment



Current Projects



Field



ISLANDSCHOLAR  
ROBERTSON LIBRARY

Scholars

Departments

Faculty/Staff Works

Graduate Projects

Theses Collection

Publish @ UPEI



Mark Fast

Novartis Research Chair in Fish Health



PLANNING WORKSPACES PUBLISHING ARCHIVING OTHER MY AC



PUBLISH DATA

Use the Publish Data service to publish your datasets.

## Managing Research Data at UPEI

Search

In May 2015 the Tri-Council's new open access policy came into effect. In response to this, as well as the goal of facilitating good data stewardship practices, the Robertson Library, Research Services and ITSS have developed and are beta testing a suite of new supports and services for the UPEI research community. The suite of services recognizes that the research data life cycle does not start and end with the final outputs, but rather starts when a scholar thinks about new research. The services available under this new program are designed to work with scholars throughout the research data life cycle. See the [Terms and Conditions](#) for this service.

### Login Informa

Faculty and staff can access information to access on [data.upei.ca](#). If student, please [see the logging in](#). We're worki



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# IslandScholar.ca

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- ❖ Traditional Institutional Repository stewarding final research outputs plus optional data file
- ❖ Launched in 2008, over 10,000 citations
- ❖ Supports the Senate-approved Open Access policy which “encourages” deposit of article + data
- ❖ Includes all scholars: faculty, graduate and undergraduate (honours) students

search

[Advanced Search](#)

Description

Citation

 1

Title	The use of expert opinion to assess the risk of emergence or re-emergence of infectious diseases in Canada associated with climate change
Author(s)	R. Cox, C. W. Revie, J. Sanchez
Journal	PloS ONE
Date	2012
Volume	7
Issue	7
Start page	e41590

**Abstract**

Global climate change is predicted to lead to an increase in infectious disease outbreaks. Reliable surveillance for diseases that are most likely to emerge is required, and given limited resources, policy decision makers need rational methods with which to prioritise pathogen threats. Here expert opinion was collected to determine what criteria could be used to prioritise diseases according to the likelihood of emergence in response to climate change and according to their impact. We identified a total of 40 criteria that might be used for this purpose in the Canadian context. The opinion of 64 experts from academic, government and independent backgrounds was collected to determine the importance of the criteria. A weight was calculated for each criterion based on the expert opinion. The five that were considered most influential on disease emergence or impact were: potential economic impact, severity of disease in the general human population, human case fatality rate, the type of climate that the pathogen can tolerate and the current climatic conditions in Canada. There was effective consensus about the influence of some criteria among participants, while for others there was considerable variation. The specific climate criteria that were most likely to influence disease emergence were: an annual increase in temperature, an increase in summer temperature, an increase in summer precipitation and to a lesser extent an increase in winter temperature. These climate variables were considered to be most influential on vector-borne diseases and on food and water-borne diseases. Opinion about the influence of climate on air-borne diseases and diseases spread by



extent an increase in winter temperature. These climate variables were considered to be most influential on vector-borne diseases and on food and water-borne diseases. Opinion about the influence of climate on air-borne diseases and diseases spread by direct/indirect contact were more variable. The impact of emerging diseases on the human population was deemed more important than the impact on animal populations.

DOI [10.1371/journal.pone.0041590](https://doi.org/10.1371/journal.pone.0041590)

PubMed ID [22848536](https://pubmed.ncbi.nlm.nih.gov/22848536/)

PubMed Central ID [PMC3407223](https://pubmed.ncbi.nlm.nih.gov/PMC3407223/)

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Text [http://www.islandscholar.ca/download\\_ds/ir%3A4959/PDF/ir\\_4959.pdf](http://www.islandscholar.ca/download_ds/ir%3A4959/PDF/ir_4959.pdf)

### Using APA 6th Edition citation style.

Cox, R., Revie, C. W., & Sanchez, J. (2012). The use of expert opinion to assess the risk of emergence or re-emergence of infectious diseases in Canada associated with climate change. *PloS ONE*, 7(7), e41590. doi:10.1371/journal.pone.0041590

Times viewed: 458

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Relevance

Title

Date ▾


**Your Search:** Collection: "Faculty Staff Works" ✕

**Limited to:** no limits selected

A collection of academic publications by faculty and staff, both before and during their time at UPEI.

Use "Limit Results" to narrow your search. Click on an item title to view a full citation, or add the item to your bibliographical list by clicking "Add to My List". Click "Full Text" to download a PDF of the publication where available. UPEI students and employees have the option to "Check at UPEI" for publications that do not have full text available in IslandScholar. To find out more about how to use this page, please read our [Help Page](#).

10 | 25 | 50 | 100

11 - 20 of 10302

‹ previous 1 2 3 4 5 ... next ›

[Development of the microsporidian parasite, \*Loma salmonae\*, in a rainbow trout gill epithelial cell line \(RTG-1\): evidence of xenoma development in vitro](#)

McConnachie, S. H., Sheppard, J., Wright, G. M., & Speare, D. J. (2015). Development of the microsporidian parasite, *Loma salmonae*, in a rainbow trout gill epithelial cell line (RTG-1): evidence of xenoma development in vitro. *Parasitology*, 142(2), 326–331. doi:10.1017/S0031182014001620

Growth and propagation of fish-infecting microsporidians within cell culture has been more difficult to achieve than for insect- and human-infecting microsporidians. Fish microsporidia tend to elicit xenoma development rather than diffuse growth in vivo, and this process likely increases host specif...

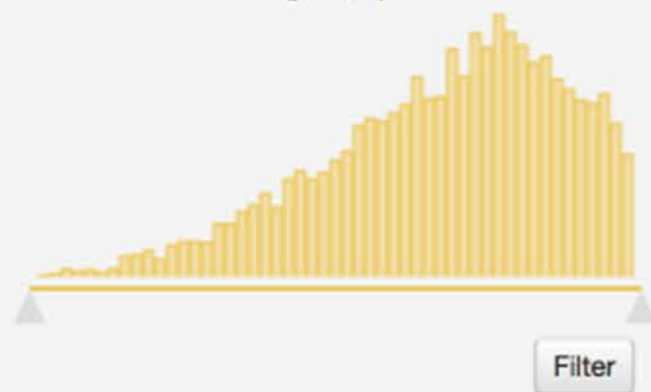


[Description of \*Pseudobacteriovorax antillogorgiicola\* gen. nov., sp. nov., a bacterium isolated from the gorgonian octocoral \*Antillogorgia elisabethae\*, belonging to a novel bacterial family, \*Pseudobacteriovoracaceae\* fam. nov., within the order \*Bdellovibrionales\*](#)

McCauley, E. P., Haltli, B., & Kerr, R. G. (2015). Description of *Pseudobacteriovorax antillogorgiicola* gen. nov., sp. nov., a bacterium isolated from the gorgonian octocoral *Antillogorgia elisabethae*, belonging to a novel bacterial family, *Pseudobacteriovoracaceae* fam. nov., within the order *Bdellovibrionales*. *International Journal of Systematic and Evolutionary Microbiology*, 65, 522–530. doi:10.1099/ijs.0.066266-0

## Limit Results

### Date

 1965 - 2016  
 (years)


Filter

Specify date range: [Show](#)

### Type

Journal Article (7700)

Book, Section (648)

Conference Proceedings (541)

Book, Whole (512)

Unpublished Material (302)

[Show more](#)

### Collection



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# Virtual Research Environments

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- ❖ Library started developing VREs in 2006
- ❖ Provides a generic web environment + data repository
- ❖ Best examples support an intellectual data model
  - ❖ Russ Kerr - nutraceuticals/pharmaceuticals
  - ❖ Jason Pearson - quantum chemistry
  - ❖ Kate Tilleczek - at risk youth
  - ❖ Annabel Cohen - singing and health

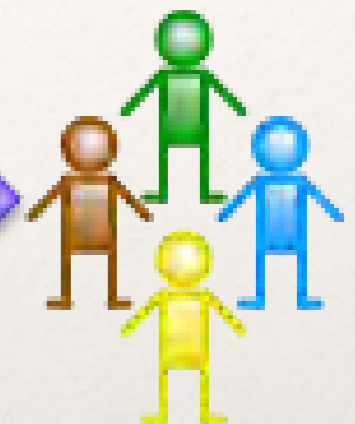
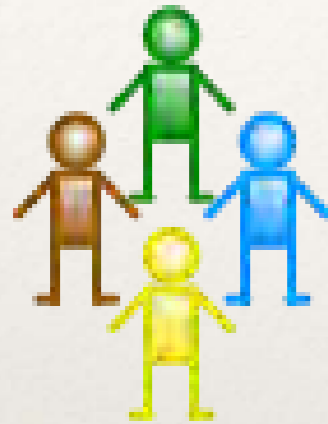


# Intellectual Data Model



Open Access

Sharing, Collaboration, Replication, Transformation, Discovery



Annotation

Enhancement

Enrichment

Analysis

Visualization

Entity Extraction

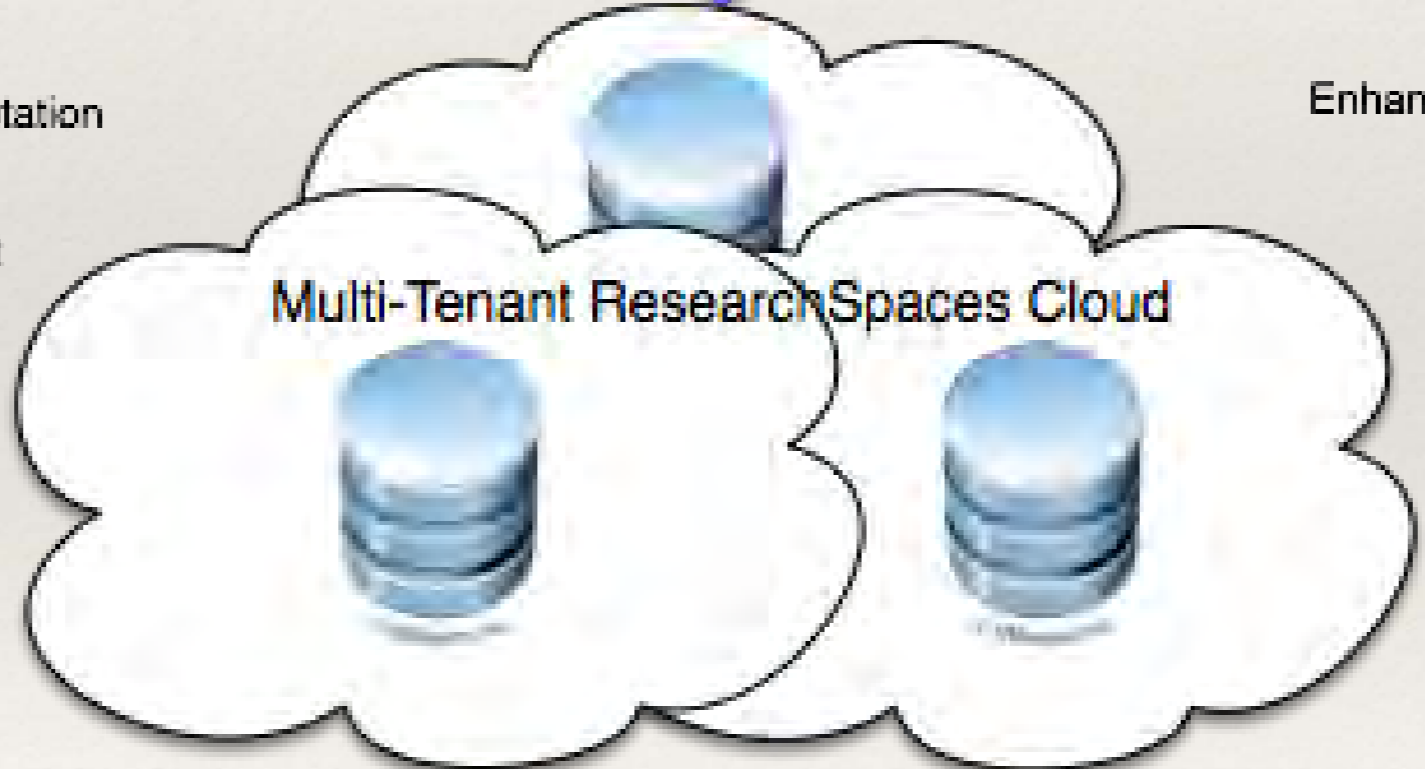
Relationships

Publication

Multi-Tenant Research Spaces Cloud

Innovation

Innovation





### Kerr Research Group

The Marine Natural Products Group at the University of Prince Edward Island is engaged in projects directed at the development of sustainable production methods of bioactive marine metabolites and discovering new bioactive bioproducts. The latter group includes metabolites with activities in assays of relevance to human and animal health, and with activity as antifouling agents.



#### Research Environment

The Kerr Lab is ideally located on the University of Prince Edward Island campus in Charlottetown, PE.



#### Current Projects

The MNP Group at UPEI is engaged in projects directed at the development of sustainable production methods of bioactive marine metabolites.



#### Field Work

Marine Natural Products Lab expeditions. Follow our expeditions on the interactive map!



#### Lab Members

We try to get together as a group at least once a month to enjoy activities outside the lab.







## Computational Chemistry Method Development and Applications

My account Messages Log out

HOME GROUPS ADVANCED SEARCH REPOSITORY

Search repository

Browse groups

Search structures

### Welcome to The Retrieivium

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean condimentum lobortis sollicitudin. Mauris volutpat fringilla tellus, eget fermentum quam hendrerit ut. In at aliquet leo. Praesent enim dui, faucibus nec justo vestibulum, ullamcorper lobortis lorem. Mauris vel convallis libero, vel iaculis nisl. In eros purus, tincidunt elementum arcu vitae, gravida fermentum leo. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos.

[Read more »](#)



### Upload Structures

Upload A File \*

Browse... No file selected. Upload

Select file to upload.

Files must be less than 2048 MB.

Set file type.

Ingest



**Islandora facets**
[Home](#) > [0009074402](#) <sup>(x)</sup>
**Chemical Synonym**

- 0 (1) +-
- 00090744 (1) +-
- 0009074401 (1) +-
- 00163890 (1) +-
- 0016389001 (1) +-
- 0016389002 (1) +-
- 00808 (1) +-
- 008801 (1) +-
- 01 (1) +-
- 01407 (1) +-

[Show more](#)
**Generic Registry Name**

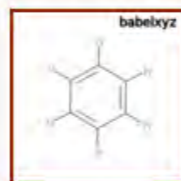
- 1 (1) +-
- 174973 (1) +-
- 174973661 (1) +-
- 2 (1) +-
- 26181 (1) +-
- 26181884 (1) +-
- 27271 (1) +-
- 27271552 (1) +-
- 4 (1) +-
- 43 (1) +-

[Show more](#)
**Molecular Weight**

- 1118 (1) +-
- 78 (1) +-
- 781118 (1) +-

**Search results**

(1 - 1 of 1) Pages



<b>Object</b>	Benzene
<b>Formula</b>	C6H6
<b>InChiKey</b>	UHOVQNZJYSORNB-UHFFFAOYSA-N
<b>Chemical Synonym</b>	NCGC00090744-02, UN1114, Benzen [Polish], Benzene + aniline combo, 270709_ALDRICH, 311855_SIGMA, Benzene (including benzene from gasoline), 676985_ALDRICH, Benzene [UN1114] [Flammable liquid], 154628_SIAL, Benzene, labeled with carbon-14 and tritium, BENZENE, benzol, benzole, 322644_SIGMA, Benzin (Obs.), InChI=1/C6H6/c1-2-4-6-5-3-1/h1-6, 12540_FLUKA, Benzine (Obs.), NCGC00163890-02, Benzol 90, Benzene-U-14C, NCGC00090744-01, Benzene-UL-14C, 401765_ALDRICH, Benzol diluent, 12552_FLUKA, Benzolo [Italian], RNG, 12553_FLUKA, 319953_SIAL, ST5214351, CHEBI:16716, NCGC00163890-01, ghi.PD_Mitscher_leg0.503, Benzene, pure, BNZ, c0142, Hydrocarbons, C4-8, Benzeen, Benzen, Benzin, Benzine, Benzolene, Benzolo, Bicarburet of hydrogen, Carbon oil, Coal naphtha, Cyclohexatriene, Fenzen, Mineral naphtha, Motor benzol, NCI-C55276, NSC67315, Nitration benzene, Phenyl hydride, Pyrobenzol, Pyrobenzole, WLN: RH, [6]Annulene, CCRIS 70, Caswell No. 077, EINECS 200-753-7, EPA Pesticide Chemical Code 008801, Fenzen [Czech], HSDB 35, NSC 67315, Phene, Aromatic alkane, RCRA waste no. U109, RCRA waste number U019, UN 1114, Polystream, C01407, (6)Annulene, 32212_RIEDEL, Benzene, labeled with carbon-14, 48503_SUPELCO, AI3-00808, Benzeen [Dutch]
<b>Generic Registry Name</b>	27271-55-2, 68956-52-5, 26181-88-4, 174973-66-1, 54682-86-9, 71-43-2
<b>Functional Fragment</b>	0000A000
<b>Molecular Weight</b>	78.1118

**Upload Structures**
**Upload A File \***
 No file selected. 

Select file to upload.

Files must be less than 2048 MB.

 Set file type.

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# [data.upei.ca](http://data.upei.ca)

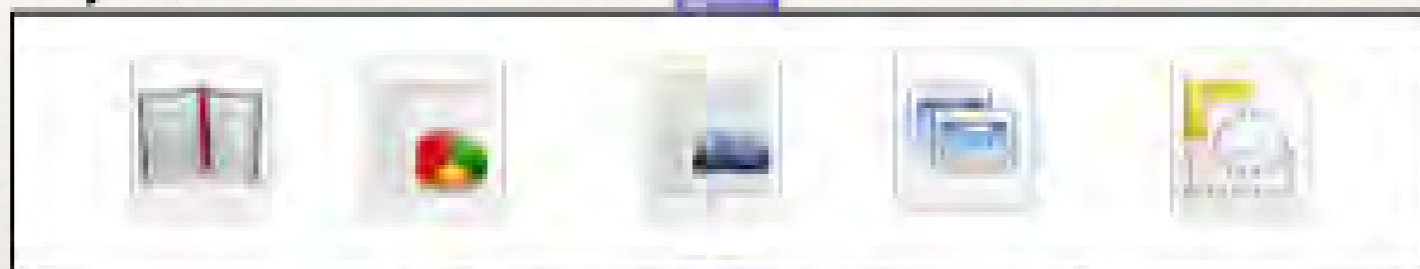
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- ❖ Single framework supporting all stages of research data life cycle, from planning to archiving
- ❖ Development encouraged by a faculty survey (2014) - 85% of faculty store research data in DropBox
- ❖ Launched in 2015
- ❖ Based on work done at Simon Fraser University and elsewhere in the Islandora open source community





Physical Data Model



Security & Encryption

Technical Metadata (DPX, EXIF, METS, MIX, VIDEO MD)

Administrative/Preservation Metadata (MODSRIGHTS, PREMIS, XACML)

Single Tenant Research Spaces



Descriptive Metadata (ChemML, EMBL, Darwin Core, MzXML, TEI, MODS, EML)

Data Files and Formats (MIME types, information extraction)

DATA WORKSPACE

GET DESKTOP SYNC

DEPOSIT DATA

REQUEST HELP

ADVANCED SEARCH

REPOSITORY HOME

ADMIN LOGIN

• REQUEST NEW PASSWORD

Log in

[Home](#) > [Islandora Repository](#) > [Economics](#) >

## Consumption Inequality in Canada, 1997 to 2009

### CSV files, one per worksheet

- [View islandora-79.derivs.csv in Ethercalc](#)

### Description

We assess the evolution of consumption inequality in Canada over the years 1997 to 2009. We correct the imputation of shelter consumption for homeowners to allow for unobserved differences in housing quality correlated with selection into rental tenure, and we account for measurement error in this imputation. Using the Surveys of Household Spending 1997-2009, we find that household-level consumption inequality measured by the Gini coefficient increased from 0.251 to 0.275 over 1997 to 2006, and then declined to 0.264 by 2009. The Gini coefficient for individual level inequality similarly followed a hump-shaped pattern: it increased from 0.199 in 1997 to 0.216 in 2006, and then fell to 0.207 in 2009. In contrast, the Gini coefficient for householdlevel income inequality followed a similar hump-shaped pattern, but the post-2006 decline was large enough to entirely wipe out pre-2006 increase. We also explore a possible correction for tail non-response bias in inequality measurement, and find that the increase in measured consumption inequality is robust to this correction.

### In collections

- [Economics](#)

### Cite as

Sam Norris, Krishna Pendakur (2014): Consumption Inequality in Canada, 1997 to 2009.  
<http://researchdata.sfu.ca/islandora/object/islandora:79>.

[Details](#)



## PUBLISH DATA

Use the Publish Data service to publish your datasets.

# Managing Research Data at UPEI

In May 2015 the [Tri-Council's new open access policy](#) came into effect. In response to this, as well as the goal of facilitating good data stewardship practices, the Robertson Library, Research Services and ITSS have developed and are beta testing a suite of new supports and services for the UPEI research community. The suite of services recognizes that the research data life cycle does not start and end with the final outputs, but rather starts when a scholar thinks about new research. The services available under this new program are designed to work with scholars throughout the research data life cycle. See the [Terms and Conditions](#) for this service.

Search Data:



## Login Information

Faculty and staff can use their UPEI login information to access and use the services on [data.upei.ca](http://data.upei.ca). If you are a graduate student, please [see these instructions before logging in](#). We're working on an [FAQ](#) for [login](#) and other questions.



# My Account

Search Data:



## Welcome

You may want to review the [Terms and Conditions](#) and [Terms of Deposit](#) for data.upei.ca

This page provides you with a dashboard to common services and a summary of the content you've created or deposited in data.upei.ca.

[➔ GO TO MY WORKSPACE](#)

## My Data Management Plans

Project	% Done	Updated	Creator	Edit
<a href="#">Mark's APLA Project</a>	25	06/26/2015 - 16:15	<a href="#">mleggott</a>	<a href="#">edit</a>
<a href="#">Mark's Test</a>	46	06/26/2015 - 15:39	<a href="#">mleggott</a>	<a href="#">edit</a>

[👤 CREATE A NEW DATA MANAGEMENT PLAN](#)

## My Collaborations

You are not a collaborator on any data management plans yet.

## My Deposited Datasets

Title	Owner	Date	Modified
<a href="#">Big test dataset</a>	<a href="#">mleggott</a>	2015-08-01	2015-08-01
<a href="#">Test image file</a>	<a href="#">mleggott</a>	2015-06-26	2015-06-26
<a href="#">Test dataset</a>	<a href="#">mleggott</a>	2015-06-11	2015-06-11
<a href="#">Test</a>	<a href="#">mleggott</a>	2015-05-13	2015-05-13
<a href="#">Mark's Research Project</a>	<a href="#">mleggott</a>	2015-05-13	2015-05-13
<a href="#">mleggott Data Collection</a>	<a href="#">mleggott</a>	2015-05-13	2015-05-13

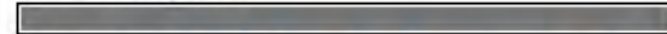




- This document is now locked against simultaneous editing. It will unlock when you navigate elsewhere.
- Your lock will be considered stale and up for grabs in 30 min.

## Content Complete: current node

25% complete



Filling out [1.2 What file formats will your data be collected in?](#) will bring Data Management Plan to 29%.

## Edit Data Management Plan Mark's APLA Project

[View](#)

**Edit**

[Share Plan](#)

Search Data:



### Project Information \*

[Section 1: Data Collection](#)

[Section 2: Data Documentation](#)

[Section 3: Storage and Backup](#)

[Section 4: Data Archiving and Preservation](#)

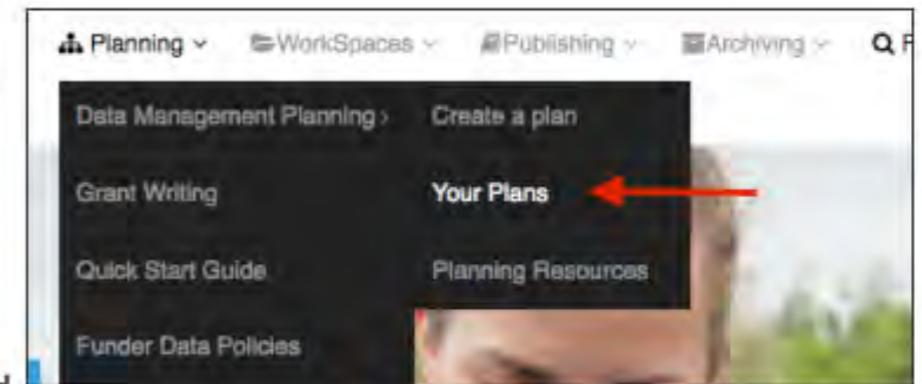
[Section 5: Data Sharing and Reuse](#)

## Introduction

This Data Management Planning Form will guide you through a number of sections relating to the data you'll be collecting as part of your research project. You can start filling in the information, save it and come back to it by selecting Planning > Data Management Planning > [Your Plans](#) from the menu.

The form is divide up into sections, available on the left and include:

- Project Information
- Section 1: Data Collection
- Section 2: Data Documentation
- Section 3: Storage and Backup
- Section 4: Data Archiving and Preservation
- Section 5: Data Sharing and Reuse



My Files

Alerts 5

- employee\_travel\_expense\_report\_canad
- employee\_travel\_expense\_report\_canad

Bookmarks show

My Shares show

Folders

- My Files
- Project Islandora Files
- Recycle Bin

Search  + Create Upload Your Publish/Archive Space

Rename Move Delete Export to Publish/Archive More

Sort by ... | Display ... | File Info

Project Islandora Files  
Modified on August, 1st

231938e.pdf  
Modified on June, 11th

cuny\_handout.pdf  
Modified on October, 21st

**Fanfarelli\_et\_al\_CDQ-3-3-May-2015.pdf**  
Modified on June, 29th

oclcresearch-loc-linked-data-2015.pdf  
Modified on March, 27th

ResearchDataManagementatUPEI.pdf  
Modified on March, 27th

Recycle Bin  
Modified on October, 21st

Pydio

UPEI Research Data - My Files

Last sync a few seconds ago Synchronized

Last files synced

- cuny\_handout.pdf [Open File](#)
- Fanfarelli\_et\_al\_CDQ-3-3-May-2015.pdf [Open File](#)
- 231938e.pdf [Open File](#)
- oclcresearch-loc-linked-data-2015.pdf [Open File](#)

CREATE A NEW SYNCHRONIZATION

Fanfarelli\_et\_al\_CDQ-3-3-May-2015.pdf

Download Preview

Export to Publish/Archive

Edit Share

SIZE 56.65 Kb TYPE PDF File

LAST MODIF. Modified on June, 29th

SHARED [update](#)

You have shared this file via a public link, but it is currently inactive (expired).

PUBLIC LINK <https://data.upei.ca/pydio/dat>

META DATA [update](#)

TAGS



# Ingest

Search Data:

**Title \***

The title of the dataset/study.

**Note: This is a required field.**

**Author(s)/Creator(s) \***

Author or Authors (use the  button add another author).

Please follow the convention "Lastname, Given Names."

**Note: This is a required field.**

**Publisher \***

The publisher of the dataset.

**Note: This is a required field.**

**Other Contributor(s)**


Use this option to include people or organizations who aren't considered authors, but still contributed to the work. Please follow the same convention.

Select the Add button to include another contributor.

**Contributor**

**Contributor Role**

# Test dataset

- View**
- Manage
- Versions and Events

This is a downloadable object of filetype xls and size 218 KB.



**Download**  
[/employee\\_travel\\_expense\\_report\\_canada\\_us.xls](/employee_travel_expense_report_canada_us.xls)

## In collections

- [mleggott Data Collection](#)



# Big test dataset

Search Data:


[View](#)
[Manage](#)
[Versions and Events](#)

## Object Status

Created Date	Last Modified Date	Datacite DOI	Status
2015-08-01T17:22:36.135Z	2015-08-01T17:22:50.813Z		

## Lifecycle Events

Lifecycle Event Date	Lifecycle Event ID	Lifecycle Event Type	Lifecycle Event Description
2015-08-01	upei-1	Deposit	Trying the update function.

## Dataset Versions

Created Date	Size	Label	Responsibility	Mime type	Operations
<a href="#">Saturday, 01-Aug-15 17:22:36 Z</a>	211.5 KiB	/employee_travel_expense_report_canada_us.xls	<a href="#">mleggott</a>	application/vnd.ms-excel	

## Metadata Versions

Created Date	Size	Label	Responsibility	Mime type	Operations
<a href="#">Saturday, 01-Aug-15 17:22:36 Z</a>	5.86 KiB	DDI Record	<a href="#">mleggott</a>	text/xml	

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# Sustainability

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- ❖ Designed to respond to national and international move to mandate data deposit and open access
- ❖ Based on open source software ecosystem with a large international community interested in RDM
- ❖ Islandora Project has itself generated over \$3,000,000 in research and software development grants
- ❖ Developing intersections with regional/national efforts, such as Compute Canada, Portage and CANARIE



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# Future

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- ❖ Developing new research data management framework see stewarding Health PEI and other sensitive data
- ❖ 3 levels
  - ❖ Closed loop data centre, modelled on national RDCs
  - ❖ Hadoop-based secure repository/analysis tools
  - ❖ Mass storage service intersecting with [data.upei.ca](http://data.upei.ca)