



OpenAlex

An open index of the global research ecosystem

Presentation at a glance

Introducing OpenAlex

Why you should use it

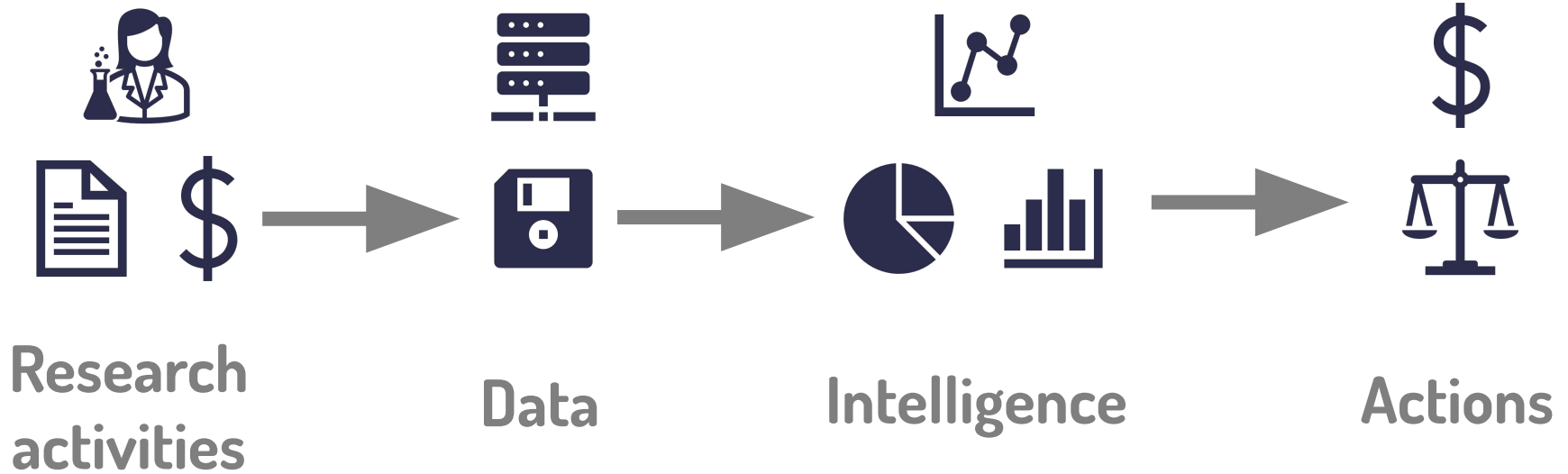
- major features & how it compares

How you can use it

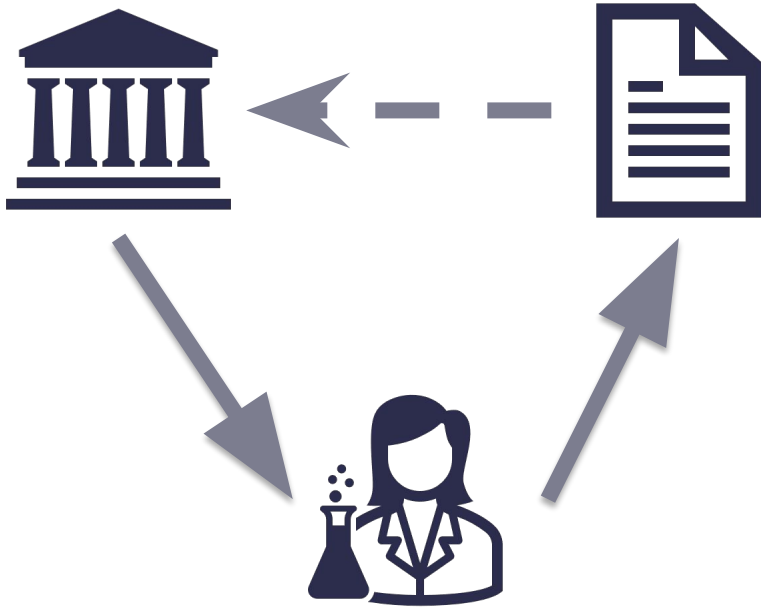
- access methods & common use cases

Discussion

Research intelligence: data guides better decisions



Research intelligence: the foundational challenge



Institutions don't get data on their research outputs.

They can't get data on comparator institutions.

Scientific knowledge graphs (SKG) provide this data.

Sources [251k]

Publishers [10k]

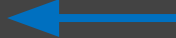
Institutions [107k]

Works [245M]

Funders [34k]

Authors [90M]

Topics [4.5k]



Sudden collapse of a mesopredator reveals its complementary role in mediating rocky reef regime shifts

Work (Article)

[HTML](#)

Published: 2018
Source: Proceedings of The Royal Society B: Biological Sciences
Authors: Jenn M. Burt (Simon Fraser University); M. Tim Tinker (University of California, Santa Cruz); Daniel K. Okamoto (Florida State University, Simon Fraser University); Kyle W. Demes (University of British Columbia, Simon Fraser University); Keith Holmes (Tula Foundation); Anne K. Salomon (Simon Fraser University)
Concepts: Trophic cascade, Mesopredator release hypothesis, Reef

Cited by: 76
Cites: 55
Related: 10

Abstract

While changes in the abundance of keystone predators can have cascading effects resulting in regime shifts, the role of mesopredators in these processes remains underexplored. We conducted annual surveys of rocky reef communities that varied in the recovery of a keystone predator (sea otter, *Enhydra lutris*) and the mass mortality of a mesopredator (sunflower sea star, *Pycnopodia helianthoides*) due to an infectious wasting disease. By fitting a population model to empirical data, we show that sea otters had the greatest impact on the mortality of large sea urchins, but that *Pycnopodia* decline corresponded to a 311% increase in medium urchins and a 30% decline in kelp densities. Our results reveal that predator complementarity in size-selective prey consumption strengthens top-down control on urchins, affecting the resilience of alternative reef states by reinforcing the resilience of kelp forests and eroding the resilience of urchin barrens. We reveal previously underappreciated species interactions within a 'classic' trophic cascade and regime shift, highlighting the critical role of middle-level predators in mediating rocky reef state transitions.

Funders (4)

Locations (3)

Identifiers (4)

SKG examples

- Web of Science
- Scopus
- Google Scholar?
- Microsoft Academic Graph
- Dimensions
- Crossref, COCI
- **OpenAlex**

**OpenAlex has broader coverage
than any other SKG.**

SKG comparisons

SKG	Number of works	Open Access works	Citations	Price	Data Openness	Org structure
OpenAlex	248M	52M	1.9B	Freemium	Fully open, CC0 license	Non-profit
Scopus	90M	20.5M (ref)	1.8B	Subscription	Closed	For Profit
Web of Science (core)	89M (ref)	24M (ref)	1.8B	Subscription	Closed	For Profit
Dimensions	140M+	29M (ref)	1.7B	Freemium	Partly open, personal use	For Profit
Google Scholar	389M (estimated)	?	?	Free	Closed	For Profit
Crossref	145M	20M	1.45B	Free	Fully open, CC0 license	Non-profit

OpenAlex is a completely open SKG.
And that's a major feature.

Limitations of closed SKGs

Their subscriptions are costly

Their (your) results cannot be shared

You can't build on them

You inherit their exclusiveness

OpenAlex does have limitations.

OpenAlex limitations

- **Bias:** Inherits from sources, esp Crossref and MAG
- **Research base:** Not much, but rapidly growing
- **Coverage:** No patents. Limited software, datasets
- **Stability:** Data changing (improving) monthly

How you can access OpenAlex.

OpenAlex snapshot

The screenshot shows the AWS S3 Explorer interface for the 'openalex' bucket. The breadcrumb path is 'openalex'. The interface includes a search bar, a 'Show 50 entries' dropdown, and a table of objects. The table columns are Object, Last Modified, Timestamp, and Size. The objects listed are 'data/' (a folder), 'browse.html' (32 KB, modified a year ago), 'LICENSE.txt' (7 KB, modified 10 months ago), 'README.txt' (129 Bytes, modified 5 months ago), and 'RELEASE_NOTES.txt' (6 KB, modified 7 days ago). The pagination shows 'Showing 1 to 5 of 5 entries' and 'Previous 1 Next'.

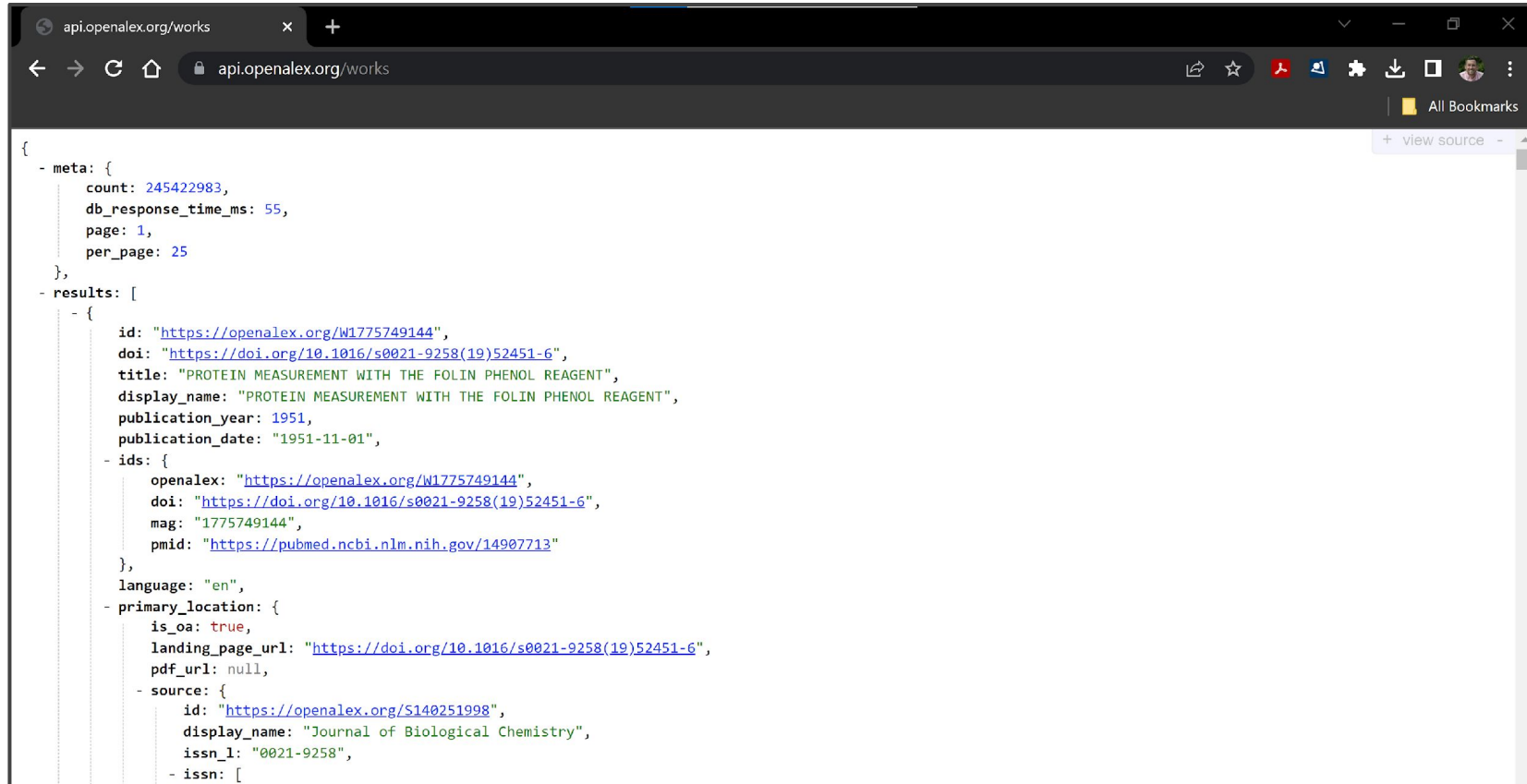
AWS S3 Explorer openalex Hide folders? Folder Bucket 5

Show entries Search:

Object	Last Modified	Timestamp	Size
data/			
browse.html	a year ago	2022-05-18 11:09:34	32 KB
LICENSE.txt	10 months ago	2022-12-30 12:04:09	7 KB
README.txt	5 months ago	2023-06-06 07:11:51	129 Bytes
RELEASE_NOTES.txt	7 days ago	2023-10-19 12:39:51	6 KB

Showing 1 to 5 of 5 entries Previous 1 Next

OpenAlex API



```
{
  - meta: {
    count: 245422983,
    db_response_time_ms: 55,
    page: 1,
    per_page: 25
  },
  - results: [
    - {
      id: "https://openalex.org/W1775749144",
      doi: "https://doi.org/10.1016/s0021-9258(19)52451-6",
      title: "PROTEIN MEASUREMENT WITH THE FOLIN PHENOL REAGENT",
      display_name: "PROTEIN MEASUREMENT WITH THE FOLIN PHENOL REAGENT",
      publication_year: 1951,
      publication_date: "1951-11-01",
      - ids: {
        openalex: "https://openalex.org/W1775749144",
        doi: "https://doi.org/10.1016/s0021-9258(19)52451-6",
        mag: "1775749144",
        pmid: "https://pubmed.ncbi.nlm.nih.gov/14907713"
      },
      language: "en",
      - primary_location: {
        is_oa: true,
        landing_page_url: "https://doi.org/10.1016/s0021-9258(19)52451-6",
        pdf_url: null,
        - source: {
          id: "https://openalex.org/S140251998",
          display_name: "Journal of Biological Chemistry",
          issn_l: "0021-9258",
          - issn: [
```

OpenAlex web interface- in beta!

The screenshot displays the OpenAlex web interface. At the top, there is a search bar with the text "Search and filter works" and a "Ctrl+K" shortcut. Below the search bar, there are filters for "institution country: Canada" and "open access". The main content area is divided into two sections: "Results" and "Report".

Results: This section shows a list of search results. The first result is "Density-functional thermochemistry. III. The role of exact exchange" by Axel D. Becke, published in 1993 in *The Journal of Chemical Physics*, cited by 88,910. Other results include "Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement" (2009, cited by 46,580), "Gradient-based learning applied to document recognition" (1998, cited by 40,740), "Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement" (2009, cited by 38,140), "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews" (2021, cited by 24,470), and "The Cochrane Collaboration's tool for assessing risk of bias in randomised trials" (2011, cited by 24,470).

Report: This section provides a summary of the search results. It includes a bar chart for "year" showing a general upward trend in citations. The "open access" section shows a 100% rate for 1,140,000 works. The "institution" section lists the top institutions: University of Toronto (171,800), University of British Columbia (101,600), McGill University (89,170), University of Alberta (71,400), and Université de Montréal (59,180). The "type" section lists the most common work types: article (1,084,000), report (16,680), book-chapter (15,920), dataset (10,230), and editorial (2,984). The "SDG" section lists the most common Sustainable Development Goals: Good health and well-being (245,700), Life below water (54,730), Quality education (44,960), Life on land (42,040), and Affordable and clean energy (39,950).

Graphic user interface for discovery, exports, and analyses.

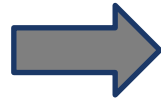
Using OpenAlex for research intelligence.

Research intelligence: Filter & Group by

Logic layer

Filters

- Country
- Institution
- Search terms
-
- Concept



Results

List



Report

Group by



Showcasing outputs

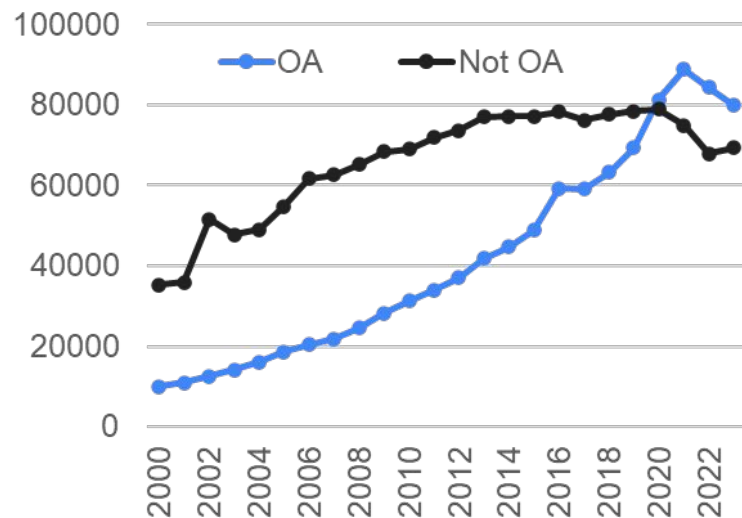
How well are we progressing towards our OA goals?

Filters:

- Institution country: Canada
- Open Access: true/false

Group by:

- Publication year



https://api.openalex.org/works?group_by=publication_year&per_page=200&filter=institutions.country_code:CA,open_access.is_oa:false

Finding collaborators

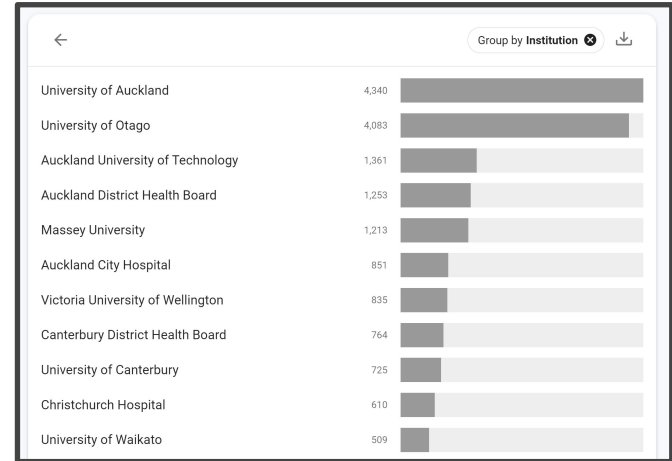
Which institutions in New Zealand are working on Gender Equality work in medicine?

Filters:

- SDG: Gender Equality
- Concept: 'medicine' or 'family medicine'
- Country: New Zealand
- Authors count: 1-10

Group by:

- Institution



https://api.openalex.org/works?page=1&filter=sustainable_development_goals.id:https://metadata.un.org/sdg/5,concepts.id:C71924100|C512399662,institutions.country_code:NZ,authors_count:1-10

Benchmarking

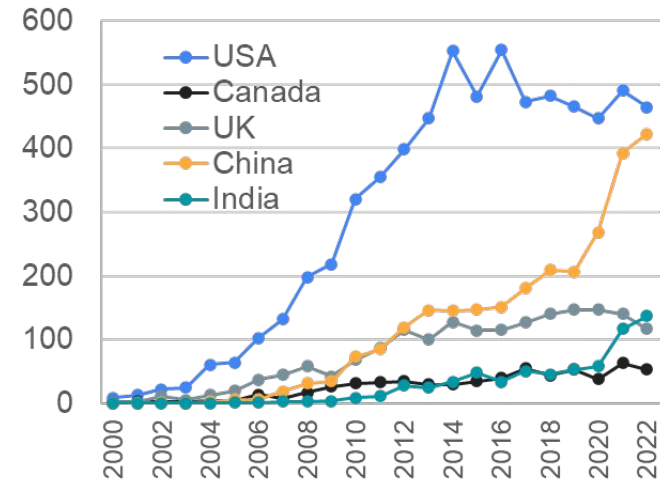
How do countries compare in their publications relating to Regenerative Medicine over the past decade?

Filters:

- Concept: *Regenerative Medicine*
- Source type: journal
- Work type NOT: paratext
- Year: 2000-
- Country: CA, US, UK, CH, IN

Group by:

- Publication year



https://api.openalex.org/works?page=1&filter=concept.id:C10854531,primary_location.source.type:journal,type:!paratext,publication_year:2000-,institutions.country_code:CA&group_by=publication_year

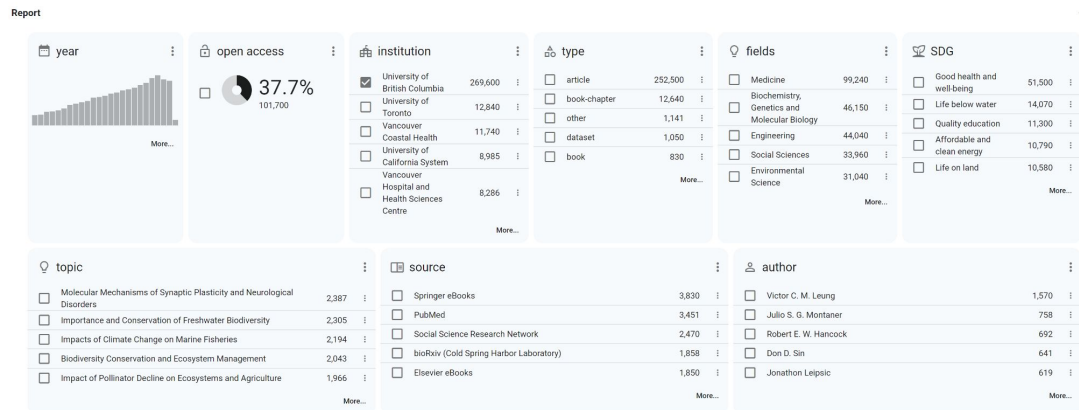
Custom reporting

Create, save, and share reporting templates to facilitate comparisons



Share report:

- Replace institution



Live demo

OpenAlex is better seen live.

<https://openalex.org>

Additional resources

Contact us: <https://openalex.org/feedback>

Upcoming events: <https://help.openalex.org/events>

How-tos & documentation: <https://help.openalex.org/>

Sustainability

Revenue from products (e.g, Unsub, Unpaywall)

Arcadia grant to establish a sustainable OpenAlex

Premium OpenAlex subscribers critical to sustainability