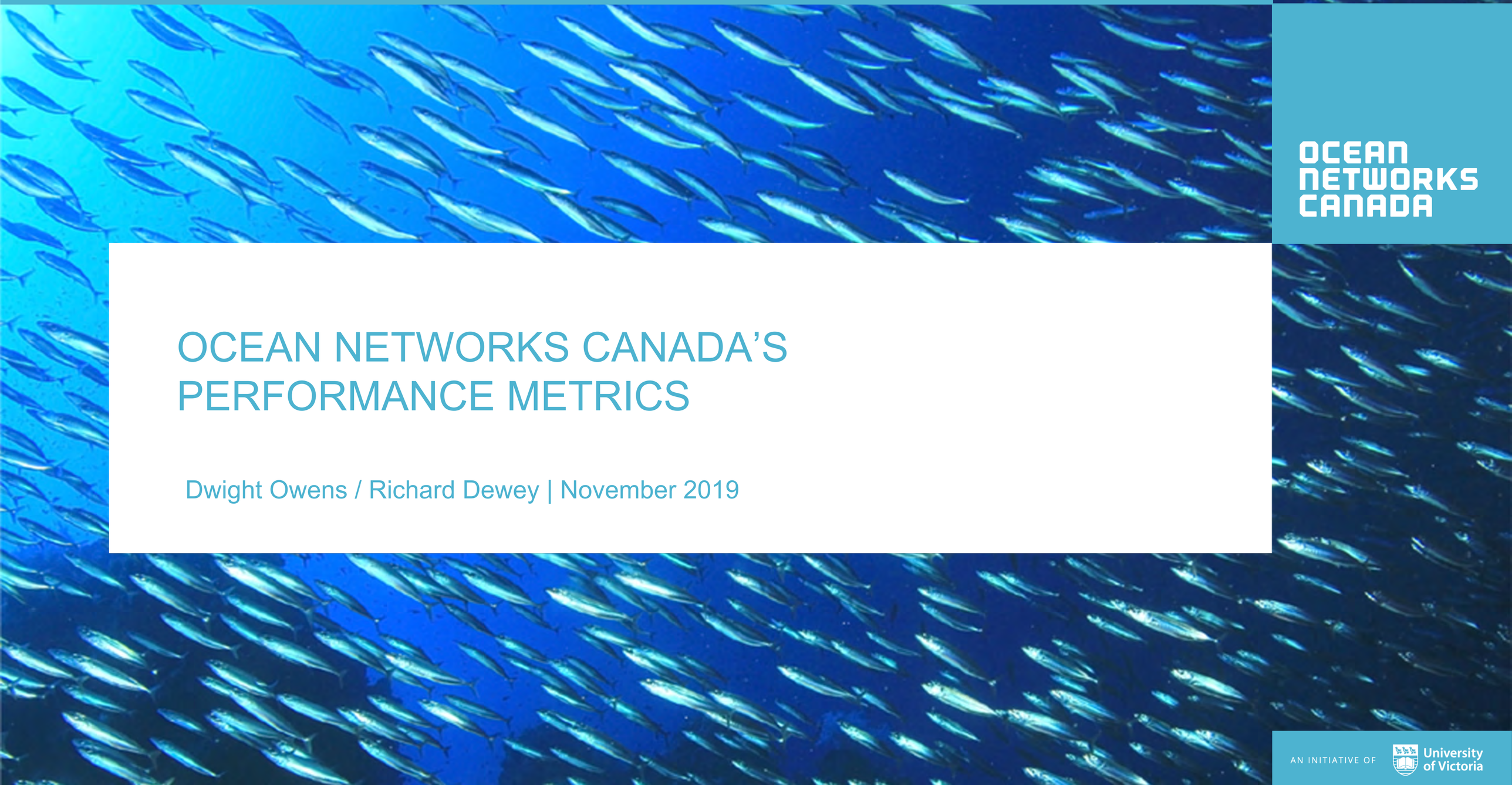
OCEAN NETWORKS CANADA



OCEAN NETWORKS CANADA'S PERFORMANCE METRICS

Dwight Owens / Richard Dewey | November 2019

ONC’s core metrics

Reported to Canada Foundation for Innovation

Klipfolio / Jonathan Taylor

- Standard indicators
- Facility-specific indicators

Standard indicators

Operations

- User access
- Optimal use
- User satisfaction

Research & Tech Development

- Advancement of research

Benefits to Canada

- Training of Highly Qualified People
- Tech transfer

Facility-specific indicators

- Facility reliability
- Active collaborations
- Informing policy development
- Indigenous community engagement

Tools for assessing user counts

Google Analytics

- Geographic distribution
- Users accessing data via websites

```
select count(*) searches, du.dmasuserid, du.email
      from dmasuser du, search se, device de
      where du.DMASUSERID = se.DMASUSERID an
         se.DEVICEID is not null and
         se.DEVICEID = de.DEVICEID and
         du.DMASUSERID not in
            ( select dgu.DMASUSERID from DMA
```

Oceans 2.0 Database Searches

- Registered users
- Application Programming Interface (API) users

Targeted Annual Survey

- Sector composition

“optimal use”

Open-ended metric — up to facility to define.

Our definition:

Past Quarter	
Average sensors producing data:	8585
Average monthly FTE:	130
Data streams/FTE:	66

Average number of active data streams divided by average full-time equivalent staff count.

How is this definition helpful?

Shows effort (across the org.) required to support data streams.

Ratio increases with efficiency/productivity improvements.

Helps indicate impacts of staffing shortages.

User satisfaction survey

“Overall, how satisfied are you with the _____ provided by Ocean Networks Canada?”

“Overall, how responsive has Ocean Networks Canada been to your questions or concerns about our service?”

Measured on 7-point scale via annual surveys sent to the scientific community.

Reported to funding agency as aggregated percentages.

Advancement of research

Number of peer-reviewed scientific contributions. Includes:

- *Peer-reviewed journal articles*
- *Peer-reviewed conference proceedings/presentations/posters*
- *Book sections*
- *Masters and Ph.D. theses*
- *Published data sets and data summaries with DOIs*

Highly qualified people (HQP)

Number of HQP trained at the facility or who used data from the facility for their training, including:

- Undergraduate students
- Masters students
- Ph.D. students
- Postdoctoral fellows
- Research associates
- Technicians

Apples, oranges, bananas, kumquats

- *Long vs. short timeframes*
- *Multiple vs. Single engagements*
- *Principal vs. supplementary data source*

Tech transfer

Aggregated total number of:

- *Technical reports (including proposals, feasibility studies, summary reports)*
- *Patents*
- *Licenses*
- *Spin-offs*

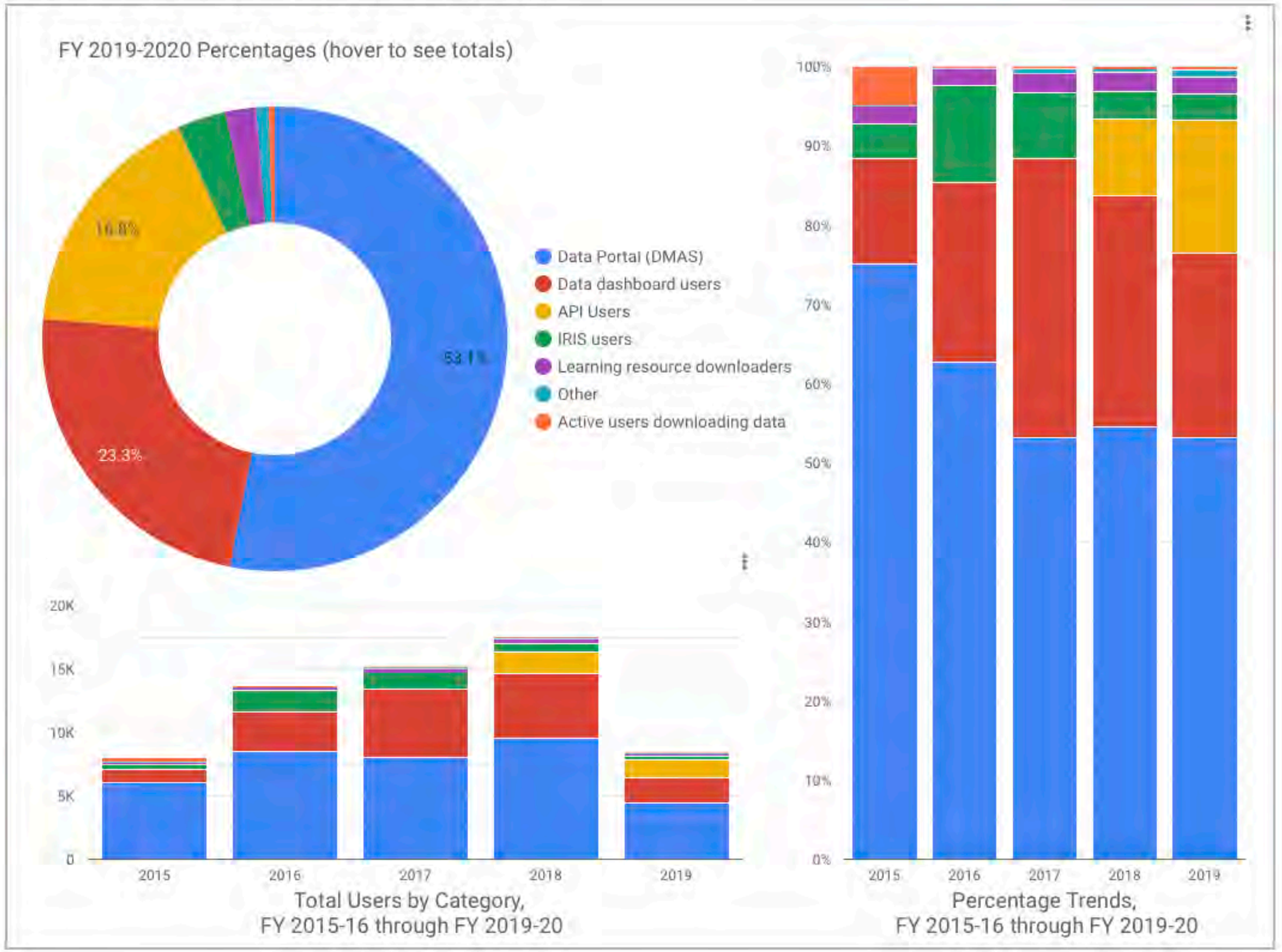
Very few patents.

Very few spin-offs.

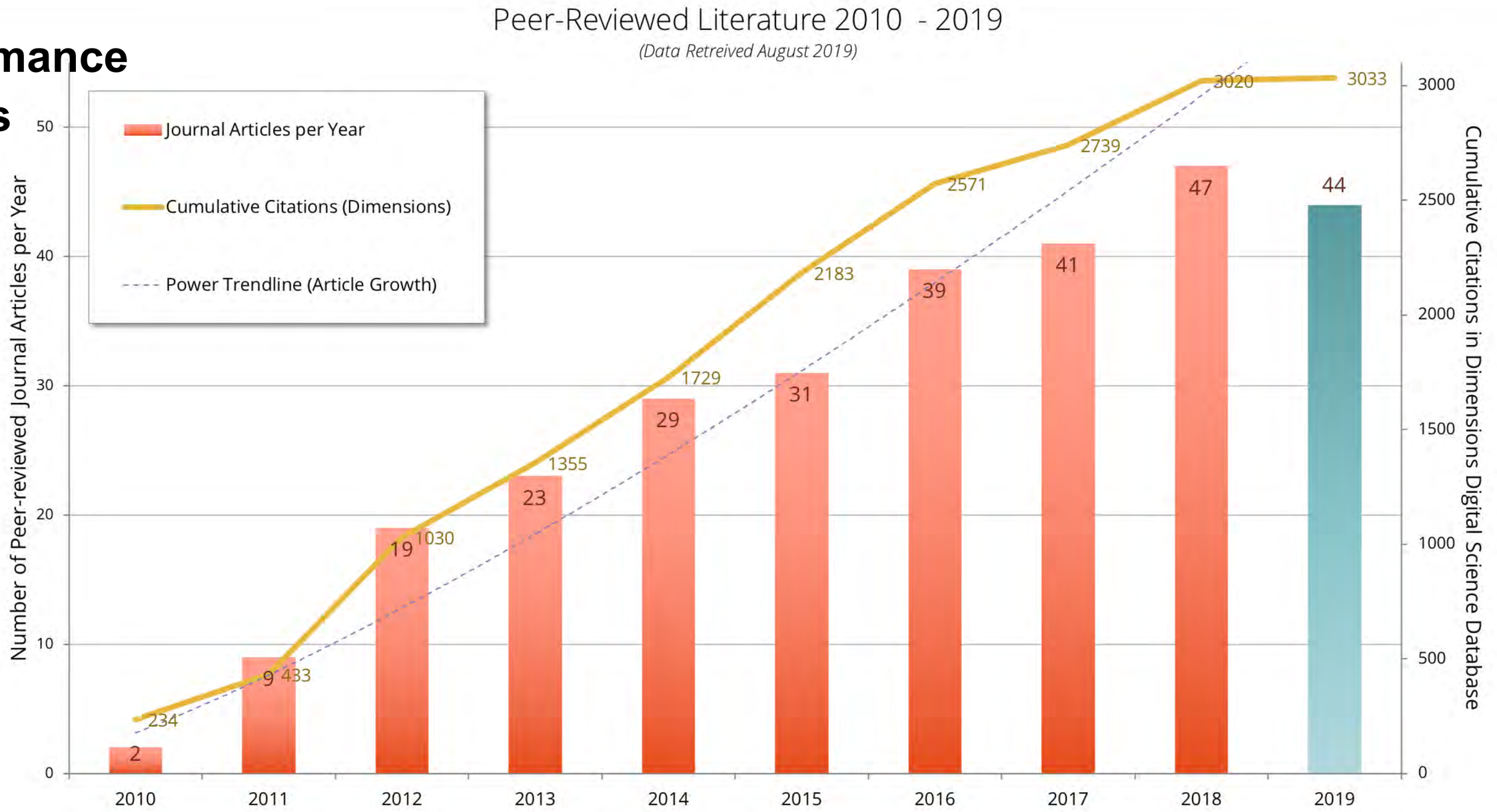
Many licenses and reports to government entities.

Example:
Chandler, P.C., King, S.A., and Boldt, J. (Eds.). 2018. State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2017. Can. Tech. Rep. Fish. Aquat. Sci. 3266: viii + 245 p

Some Performance Metrics



Some Performance Metrics



~~Standard indicators~~

~~*Operations*~~

- ~~User access~~
- ~~Optimal use~~
- ~~User satisfaction~~

~~*Research & Tech Development*~~

- ~~Advancement of research~~

~~*Benefits to Canada*~~

- ~~Training of Highly Qualified People~~
- ~~Tech transfer~~

Facility-specific indicators

- Facility reliability
- Active collaborations
- Informing policy development
- Indigenous community engagement

Facility reliability

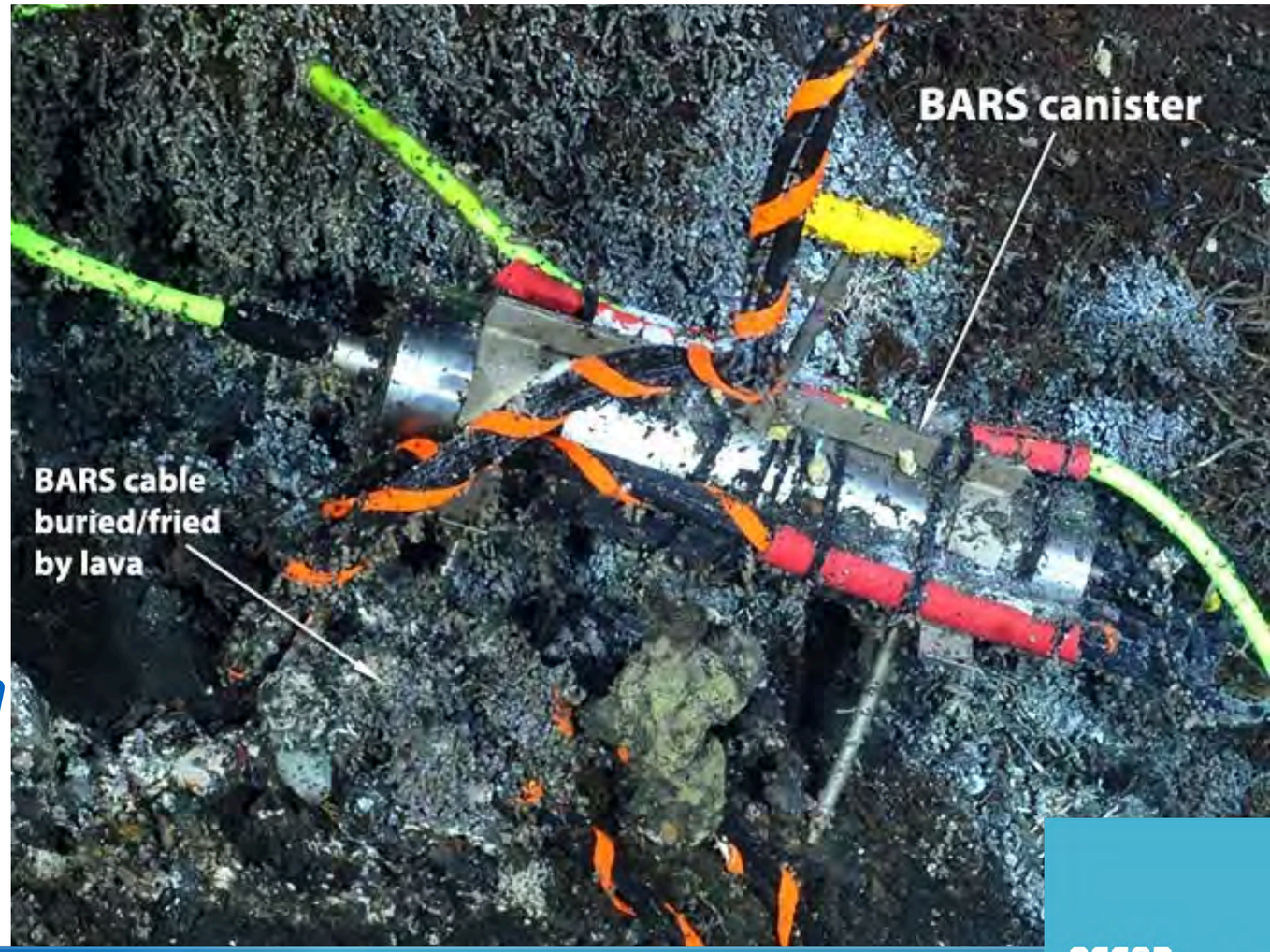
What we wanted:

Ratio of received to expected data volumes for each instrument, summed for all instruments that are connected.

(Very difficult to compute.)

So our current working definition is:

Ratio of non-compromised to total deployed instruments (including both scientific and engineering) over the time period.



Active collaborations

Sum of:

- Memoranda of Understanding (MOUs)
- Research agreements
- National/international projects that use the observatory

(Fairly straightforward, although challenging to track.)

Informing policy development

Number of civil servants, NGO representatives, elected officials engaged.

(Something we do a lot of!)

Indigenous community engagement

Number of active partnerships with Indigenous communities.

(Matches a major area of focus for the current Canadian Government.)

ONC had 18 such active partnerships last fiscal year.

Conclusions

- Funder-required metrics not always well conceived.
  - (One size usually does *not* fit all.)
  - Metrics should be objective, repeatable, and meaningful
- Imprecise by definition
  - Transparency and consistency are important
- Devil is in the details: context and interpretation
- “Just because we *can* doesn’t mean we *should*.”
- Recommend: trial & repeated refinement