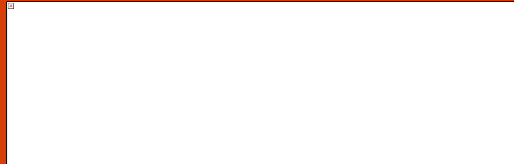


CDL IS DEAD!

...Long Live CDL

Sagan Wallace, 29 April 2024
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Slides/Extra Info: <https://beav.es/cRu>



Today's Plan

- Increasing CDL collections = increasing accessibility labor
- What's inaccessible about our scans?
- How do we change this?
- How will upcoming legislation affect us?

Definitions

- Controlled Digital Lending (CDL)
- Dots Per Inch (DPI)
- Optical Character Recognition (OCR)
- Web Content Accessibility Guidelines (WCAG)
- VPAT (Voluntary Product Accessibility Template)

Increasing CDL collections = increasing accessibility labor

- Libraries are (accidentally?) getting into the ebook game
- Developing in-house digital collections brings increased accessibility responsibilities
- Accessibility remediation is not cheap

How will upcoming legislation affect us?

- April 24, 2024: DOJ updated rules regarding Article II of the ADA
- Any public entity must comply with WCAG 2.1 Level AA Success Criteria for both mobile and web accessibility
- How many of your CDL books are fully accessible?

What's inaccessible about scans?

- Low DPI
- Poor scanning practices
- Improper format (PDF vs HTML vs Word)

116 *Song in a Weary Throat*

great handicap. But although Ted never pitied himself,
betrayed his sorrow when telling an uproariously funny

200 dpi

116 *Song in a Weary Throat*

great handicap. But although Ted never pitied himself,
betrayed his sorrow when telling an uproariously funny

300 dpi

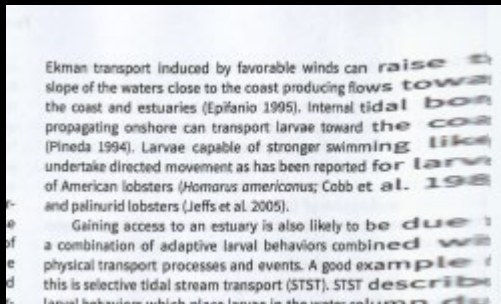
116 *Song in a Weary Throat*

great handicap. But although Ted never pitied himself,
betrayed his sorrow when telling an uproariously funny

600 dpi

Messy Scans!

A.



B.



C.



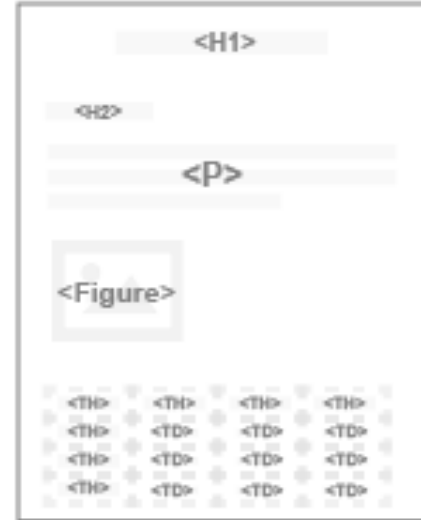
A Perfect Scan Is Still Inaccessible



Visual



Content



Tags

Ekman transport induced by favorable winds can raise the slope of the waters close to the coast producing flows toward the coast and estuaries (Epifanio 1995). Internal tidal waves propagating onshore can transport larvae toward the coast (Pineda 1994). Larvae capable of stronger swimming can undertake directed movement as has been reported for larvae of American lobsters (*Homarus americanus*; Cobb et al. 1994) and palinurid lobsters (Jeffs et al. 2005).

Gaining access to an estuary is also likely to be due to a combination of adaptive larval behaviors combined with physical transport processes and events. A good example of this is selective tidal stream transport (STST). STST describes larval behaviors which place larvae in the water column during flood tides, and near or on the bottom during ebb tides (Forward et al. 2003). This tide-hopping behavior has the

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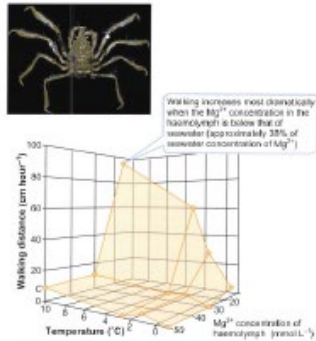


Figure 5.2 Walking activity of Antarctic spider crabs (*Euryopodius latreilli*) acclimated to seawater containing different concentrations of magnesium (Mg^{2+}) at different temperatures

Although temperature has small effects on walking activity, the effects of Mg^{2+} concentrations in the haemolymph are much more pronounced. Source: Frederick III et al. (2000). Haemolymph Mg^{2+} regulation in decapod crustaceans: physiological correlates and ecological consequences in polar areas. *Journal of Experimental Biology*, 203: 1885–1893. Antarctic Spider crab image: iStockphoto.

changes in cytosolic concentrations of Ca^{2+} that have direct effects on muscle performance¹.

Calcium (Ca^{2+}) concentrations in haemolymph appear to modulate the effects of Mg^{2+} in crustaceans. High haemolymph concentrations of Ca^{2+} result in excitability of crabs and could counteract the narcotic actions of Mg^{2+} . In general, a Ca^{2+}/Mg^{2+} concentration ratio of 0.4 to 2 occurs in the haemolymph of active decapods, while less-active species have lower Ca^{2+} concentrations relative to Mg^{2+} , giving Ca^{2+}/Mg^{2+} concentration ratios of 0.2 to 0.3.

It is thought that Mg^{2+} reduces the ability of crabs and lobsters to increase their heart rate, which is essential for effective circulation and respiratory functions during activity². Hence, although decapod crustaceans are isosmotic in a marine habitat, because of high concentrations of Na^{+} and

Cl^{-} , they must regulate their haemolymph concentrations of Mg^{2+} to lower levels than those in seawater in order to stay active and hunt effectively. They do this by excreting Mg^{2+} in their urine³.

We might ask whether a relationship between blood Mg^{2+} and activity occurs more broadly among marine invertebrates. Looking again at Table 5.1, notice that squids (*Loligo*) have a high Mg^{2+} concentration in their haemolymph; however, squids are very active, like other cephalopods. *Loligo* has a higher concentration of potassium (K^{+}) in its extracellular fluid than in seawater, and it has been argued that K^{+} stimulates the neuromuscular system of squids. However, it appears that the main factor determining physical activity of squids is not their ionic concentrations but the structural development that allows them to propel themselves by ejecting a jet of water.

5.1.2 Hagfish are isosmotic to seawater

Hagfish are marine jawless fish (agnathans)⁴, which are the only animal group aside from invertebrates with concentrations of Na^{+} and Cl^{-} in their extracellular fluid that are similar to those in seawater. These high Na^{+} and Cl^{-} concentrations explain why hagfish are isosmotic to seawater.

Although Na^{+} and Cl^{-} concentrations of the plasma (extracellular fluids) of hagfish are similar to those of seawater, the concentrations of several other ions are less than those in seawater, as indicated by the data in Table 5.2. These differences suggest that hagfish actively regulate several types of ions.

The simple nephrons of the hagfish kidney⁵ do not absorb water, yet the urine concentrations of several ions exceed plasma concentrations. The data in Table 5.2 indicate that K^{+} , Mg^{2+} , SO_4^{2-} and PO_4^{3-} are secreted into the kidney tubules⁶ for excretion in the urine.

The plasma concentrations of Ca^{2+} in hagfish are less than the Ca^{2+} concentrations of seawater, but there is no evidence from the data in Table 5.2 that net secretion by the kidney occurs, as urine/plasma concentration ratios for Ca^{2+} are below 1.0. Two alternative routes for Ca^{2+} excretion occur in hagfish:

- Hagfish may regulate Ca^{2+} concentrations of the extracellular fluids by excreting Ca^{2+} in bile. The Ca^{2+} concentration in the bile of hagfish is 12× more than in their blood plasma.

¹ Section 7.3.3 examines the excretion of Mg^{2+} by the antennal glands of crustaceans.

² The morphological characteristics of the agnathans are outlined in Section 14.2.

³ For a comparison of the simple nephrons of hagfish to those of other species, see Figure 7.11.

⁴ Section 7.2.4 examines some of the secretory processes in kidneys.

¹ We discuss the effects of cytosolic Mg^{2+} on Ca^{2+} release from the sarcoplasmic reticulum and the impacts on muscle function in Sections 18.1.6 and 18.2.3.

² We learn more about circulation during exercise in Section 13.2.2.

Do you start reading from the top of the page, or halfway down?

Why is some text purple?

Do you read the footnotes? Page numbers?

What information do you get from the graph?

Improper Format

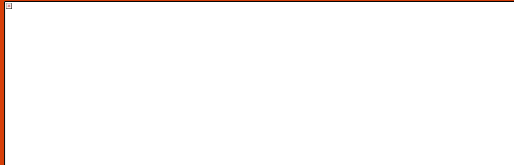
- PDF, vs
- EPUB, vs
- Word, vs
- HTML, vs
- MathML, vs
- LaTeX, vs....

How do we change this?

- Just say NO to bad scans!
- Be selective about what you will provide online
- Research and practice accessibility tools, like EPUB creation, MathML, LaTeX

Thank you!

<https://beav.es/qVg>



Project LEND

Digital Initiatives Symposium | April 2024

Rice Majors
Principal Investigator, Project LEND
Associate University Librarian for Scholarly Resources, UC Davis



I just need the *bibliographies* from 10,000 books on my research topic...

I want to download the chapter I need right now, not place an ILL request...

Reading a book cover to cover
("Controlled Digital Lending")

I want to do my own data mining, rather than having to work through HTRC's mediated process...

Mediated data mining

Our vision

I want to convert this chapter to an audio file so I can listen to it while I'm folding laundry...

I just want to apply translation utilities other than Google Translate to this passage I found...

I want AI to characterize which titles in a corpus of books are relevant to my research...

I just need access to this book for a few minutes – to see if it's interesting, to check a citation, why does it matter?



Project LEND

University of California libraries have launched a landmark research project to investigate the potential for **expanded lawful use of digitized books** held by academic and research libraries.

Project LEND (Library Expansion of Networked Delivery) is a two-year project supported by The Mellon Foundation (\$1.1 million) and begins with a rigorous user needs assessment led by a faculty member at UC Irvine and a broad legal analysis led by a faculty member at UC Berkeley School of Law.

The project seeks to enable services that would be **broadly useful** across higher education and beyond – not particular to UC.



Emerging from advances in digital access

- Pandemic closes libraries and HathiTrust enables its Emergency Temporary Access Service (ETAS), leveraging the Fair Use doctrine
- Lightweight analysis of UC's usage of ETAS was conducted for UC's Council of University Librarians
- UC faculty and students value digital access as an alternative to print
- Expanded access to entire UC corpus mitigated collection inequities
- There are many ways of using a book / doing research that are only possible with digital versions

Controlled digital lending has been gaining broader support and awareness

- ❖ Controlled digital lending services assume (among other things) that a library can provide digital access – limited to one user at a time for each print copy of the same book that the library makes unavailable

Mellon Foundation awarded the National Information Standards Organization (NISO) a grant to look at



About Project LEND 2023-2024

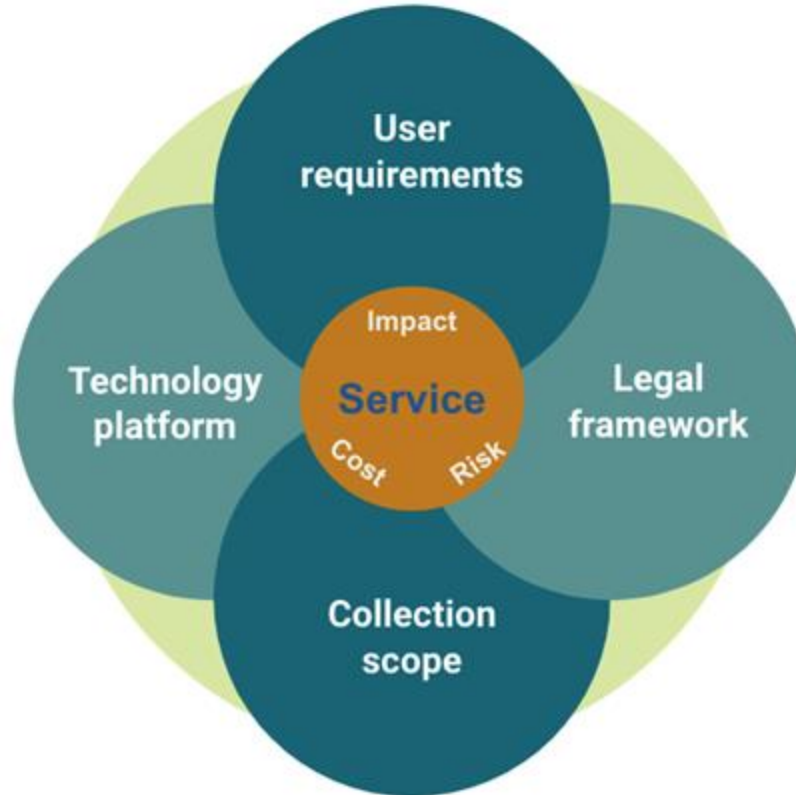




Project scope and process

- **User requirements** — directed by a faculty member at UC Irvine, we will use focus groups and other methods to understand the digital access needs of faculty and students for a range of research, education and clinical care scenarios.
- **Legal frameworks** — directed by a faculty member at the UC Berkeley School of Law, we will evaluate the legal frameworks under which libraries could provide expanded access to digitized books, including those still in copyright.
- **Technology requirements** — we will review and analyze existing technology platforms and systems for sharing and interacting with digital books, and explore the possibilities for creating new systems and services.
- **Collection scope** — we will determine the optimal composition of a digital book collection to meet user needs; what digitized collections are currently available or where more digitization efforts may be required; and how best to manage both print and digitized collections.

Dimensions of our service design process





Updates Spring 2024





Changes in the landscape

Advances in artificial intelligence

- The rapid iteration of artificial intelligence to grapple with a large body of text is already changing our understanding of potential use cases

US Copyright office NOI on AI uses

- Project LEND responded to the US Copyright Office's Notice of Inquiry regarding copyright and artificial intelligence

Hachette v Internet Archive

- In 2020 several publishers sued the Internet Archive over the lending (without restricting simultaneous users) of 127 commercially available ebooks
 - Initial judgement was in favor of publishers
 - Suit has been appealed (and so contours of the decision may change)
- Project LEND seeks to expand our understanding of the many ways scholars interact with books, not just cover-to-cover reading.



User research to date

Spring 2023: Expert interviews with librarians, platforms, vendors

Fall 2023 - Winter 2024: Focus groups and directed interviews

- Faculty, staff, grad students, post-docs, undergraduates
 - Including folks who self-identified as differently-abled
- Faculty separate into “research” and “education” focused groups
- Separate groups for digital humanists and those who use corpora as data

Spring 2024: Analysis of use cases into two clusters – “using a book” and “using a corpus”



Project timeline

- **Spring 2024:** writing and annotation of both sets of use cases (“using a book” and “using a corpus”) – why haven’t these problems already been solved? – as well as wrapping up research questions
- **Summer 2024:** consultation with HathiTrust, UC itself, and other stakeholders to iterate on recommendations, etc.
- **Fall 2024:** findings and draft recommendations, including a public webinar



Key concepts

- Project LEND seeks to expand lawful access – after **due diligence**.
- Project LEND includes both **investigatory research** (e.g., identifying what users ideally would want) and **applied outcomes** (e.g., a service plan for implementation) outputs.
 - In particular, we began with rigorous **user research**
- We are **collaborating with HathiTrust deeply** and consulting with stakeholders to check our assumptions and direction

Discussion

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