

Dredging, communities, compliance and transparency

**Lessons from the Great Barrier Reef
and new approaches**

**Brett Kettle,
PhD
BABEL-sbf**

Alternate Title:
Stakeholders:

How do you lose their trust?

How do you get it back?

... lessons from the Great
Barrier Reef.



Part <1>.
The GBR



Vast, complex, remote...
absolutely gorgeous.

Part <1>. The GBR

Imagine...

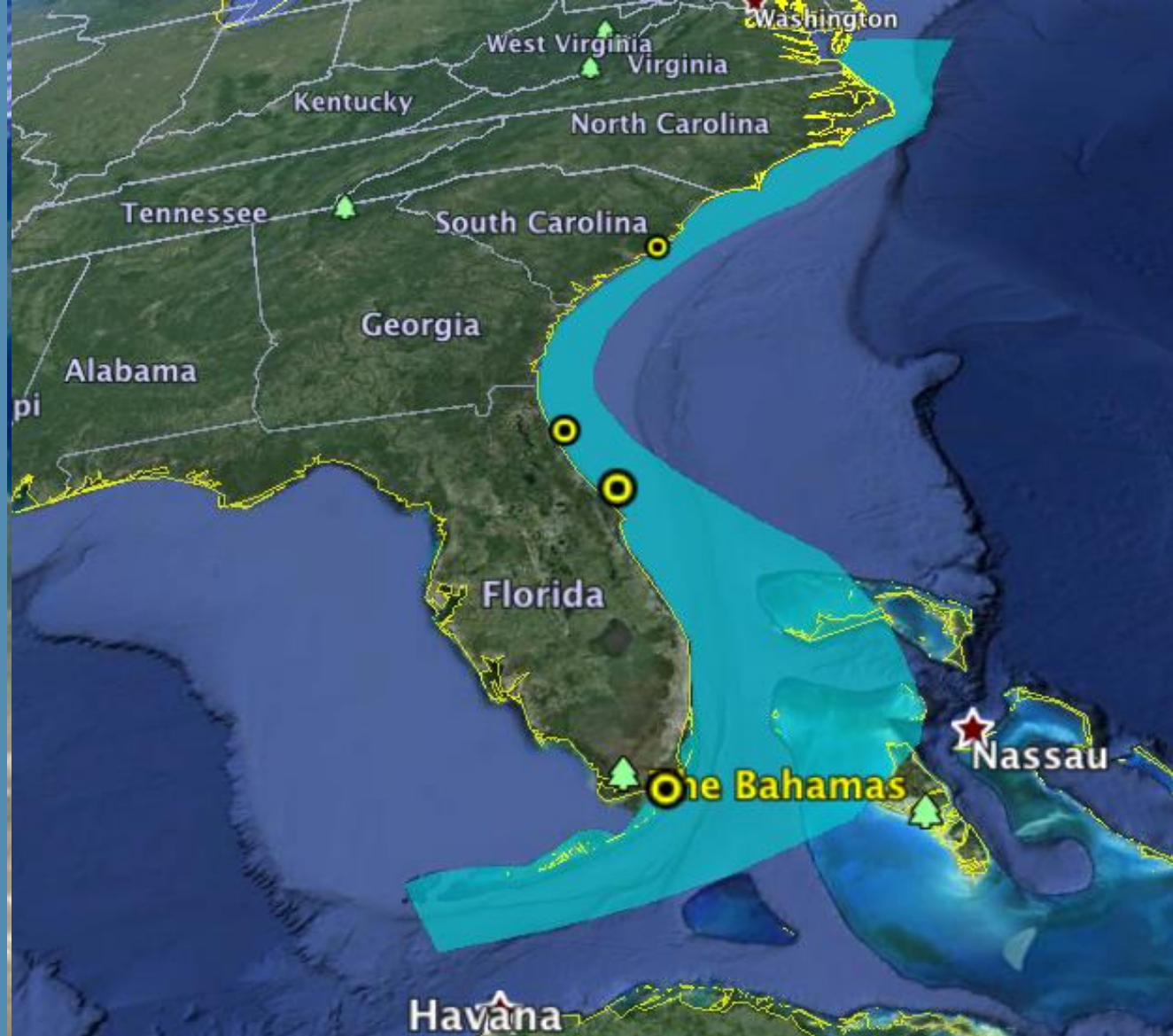
- Stretching from Key West to the Chesapeake
- 25 miles wide... to 150 miles wide
- Twice the total land area of Florida
- Only 4 major ports
- About one million people

Vast, complex, remote...
absolutely gorgeous.



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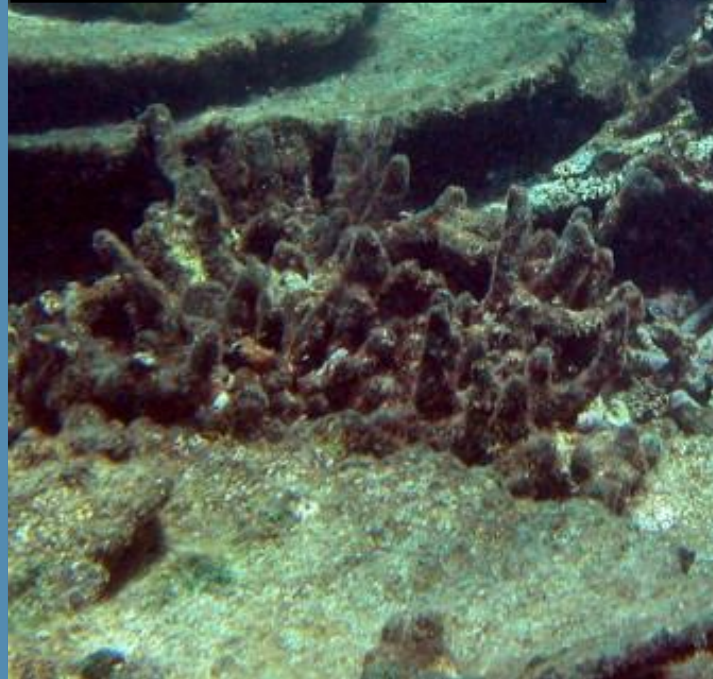
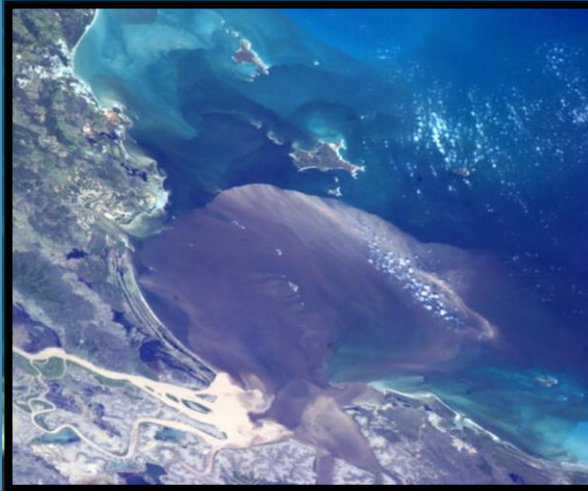
Part <1>. The GBR



Vast, complex, remote...
absolutely gorgeous.



Under threat



Fishing pressure, agricultural
runoff, crown-of-thorns starfish...

Un- knowable



Remote, complex, shrouded in
the mysteries of 'science'

The perfect campaign 'tool'



Stopping the Australian Coal Export Boom



Funding proposal for the Australian anti-coal movement

Nov. 2011. "key opportunities and strategic points of intervention: ... help to **mobilize a powerful constituency** to protect the Reef from the impacts of the coal boom."

http://www.abc.net.au/mediawatch/transcripts/1206_greenpeace.pdf

A campaign 'win'



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April 9, 2015

Biggest French banks commit not to fund Reef- wrecking coal projects

BNP Paribas, Societe Generale, and Credit Agricole have refused to fund Reef-wrecking coal projects in the Galilee Basin.



February 3, 2015

Dumping decision placed on hold

The federal government announced that decisions on dumping dredge spoil near the Reef are on hold AGAIN.

Today on the GBR...

New dredging controls:

- capping Port growth
- mandating dredging methods
- land disposal of dredged materials
- offsite sediment offsetting (150% of fine sediments)

No significant dredging work



...but these may not be the
worst long-term consequences

The casualties

Public...doesn't trust

- Industry
- Ports
- Dredgers
- Regulators
- Scientists (unless they are overtly on-side)

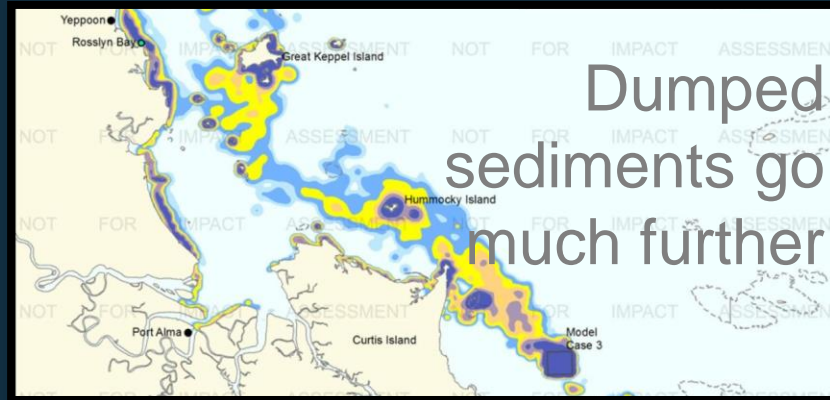


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“So where do we turn when we next need fearless technical advice in a difficult environmental management issue?”

Erosion of trust in 'scientists'

The casualties



Deadly Coral Diseases Surge Near Dredging Sites

By Laura Geggel, Staff Writer | July 21, 2014 11:22am ET

49

Share



In a first study of its kind, researchers have linked dredging to increased sickness in nearby coral reefs.



Sediment makes it harder for baby Nemo to breathe easy - JCU

Sediment makes it harder for baby Nemo to breathe easy. Anemone fish (photo: Ian McLeod). Researchers from the ARC Centre of Excellence for...

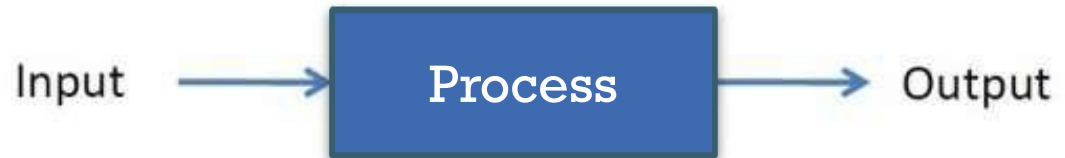
[HTTP://WWW-PUBLIC.JCU.EDU.AU/NEWS/JCU_148388](http://www-public.jcu.edu.au/news/jcu_148388)



How do we regain that trust?

Part <2>. Control Systems

OPEN FEEDBACK SYSTEM

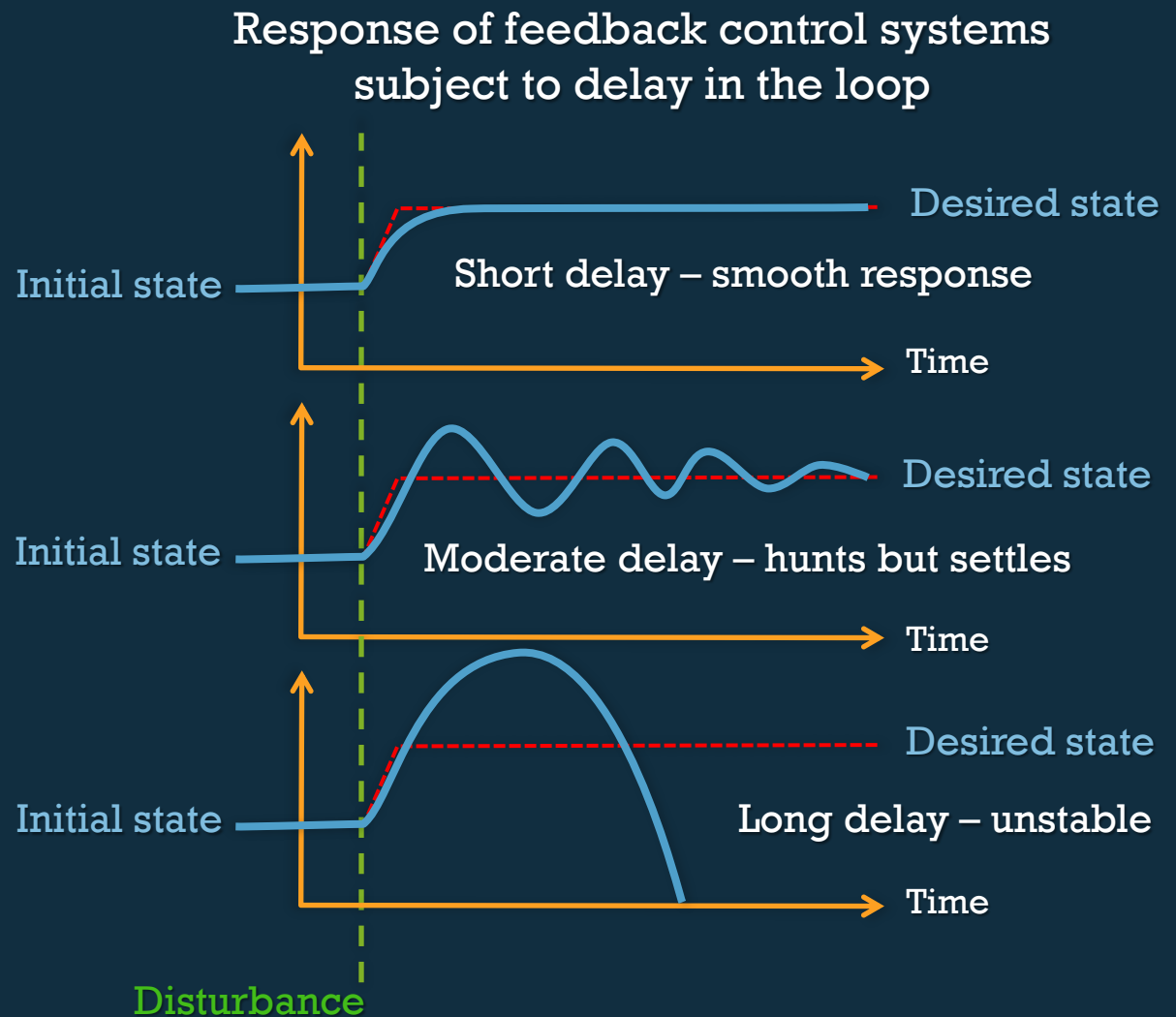


CLOSED-LOOP FEEDBACK SYSTEM



If feedback is incapable of influencing input, then it's a "set & forget" (open) control system.

Delay in control systems



Delaying effective feedback
makes management perilous.



Ineffective feedback

- Timing delay
 - measurement
 - analysis
 - reporting
 - decision-making
- Imprecision or inaccuracy
- Measuring
 - the wrong thing
 - at the wrong place in a process
- Loss of trust



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... many reasons why feedback is not “Fit for Purpose”

Part <3>. Dredging examples

- Environmental monitoring in coral reef environment
- Stakeholder engagement in dredging Projects



Environmental monitoring

What is the critical exposure period for the sensitive receptor?

- Coral:
 - Coarse sediment – 6 hours?
 - Finer sediment – several days?
 - Light attenuation – 10 days?
- Seagrasses
 - Smothering – a week?
 - Light attenuation – several weeks?

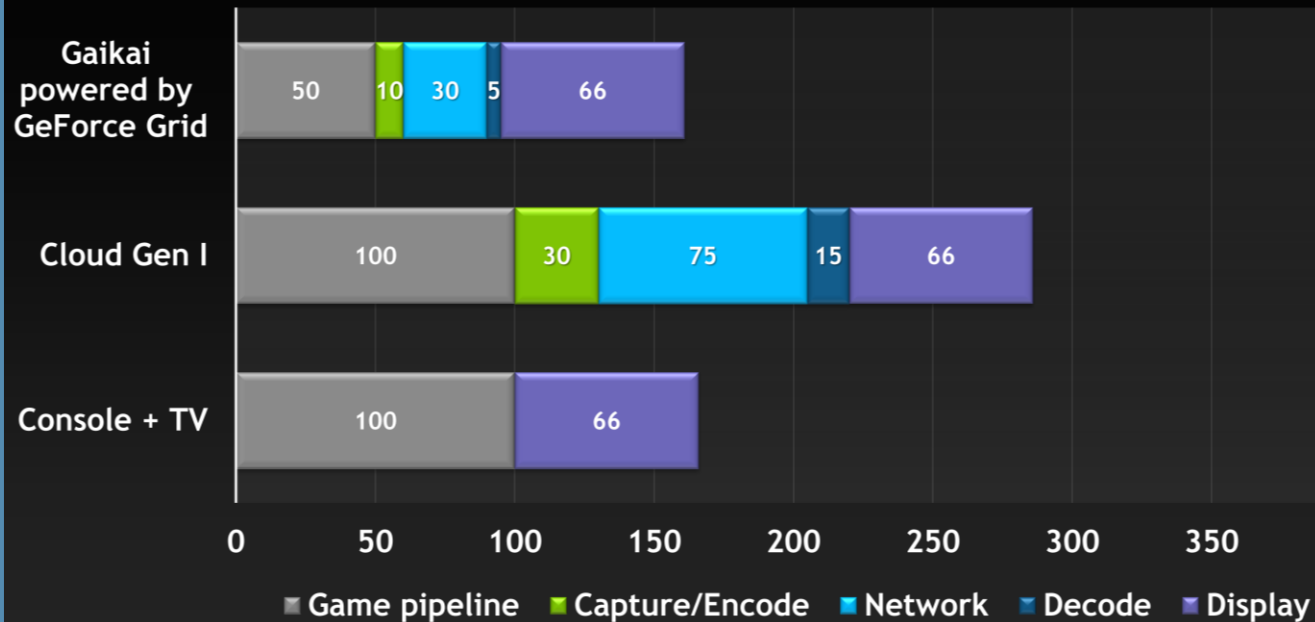
In this example, “Fit for Purpose” means quality data, every day.



Lessons from our kids

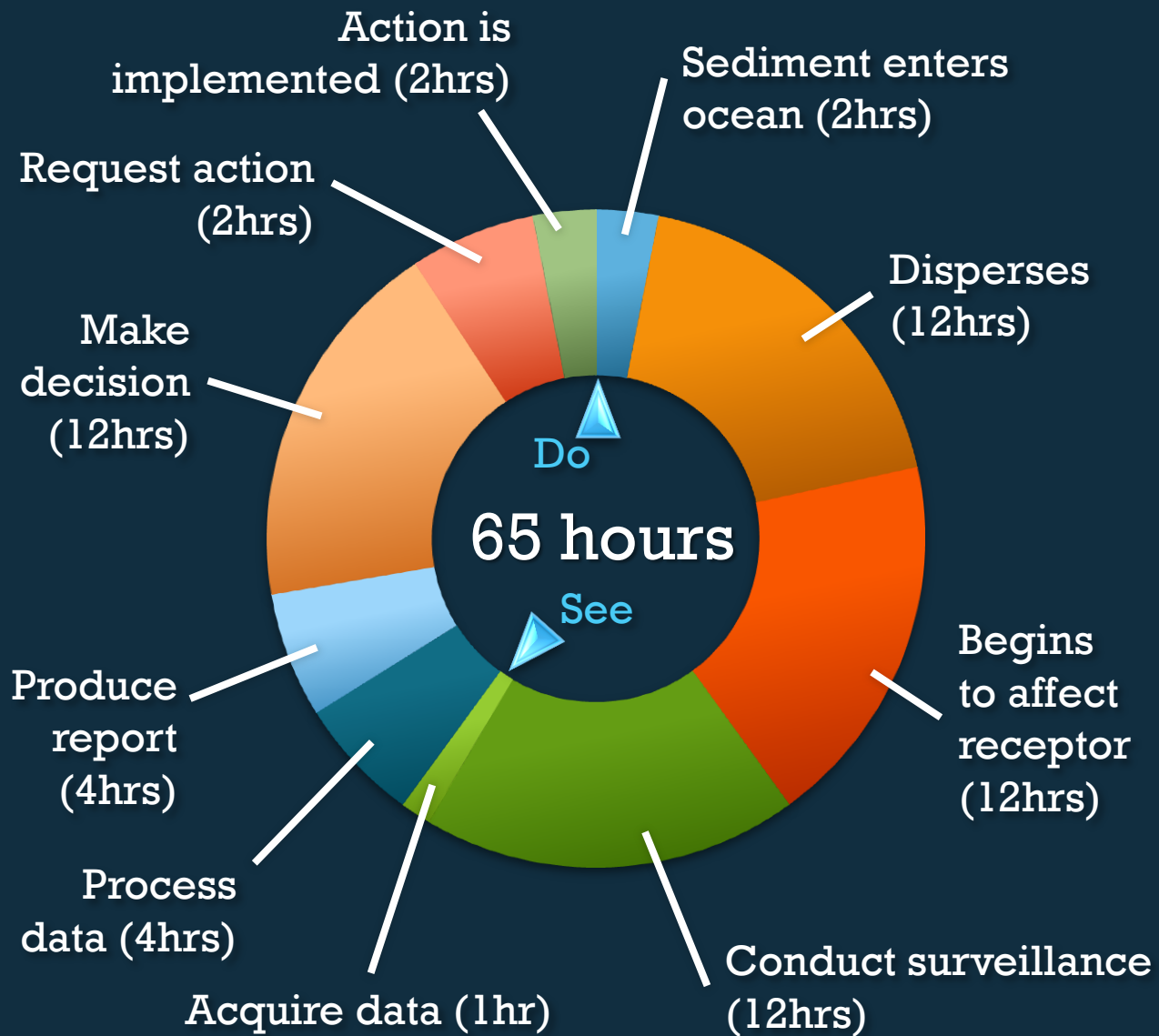


Game Latency in Milliseconds



Workflow Analysis... more complex
in the marine environment, but the
same in principle.

Latency in dredge controls



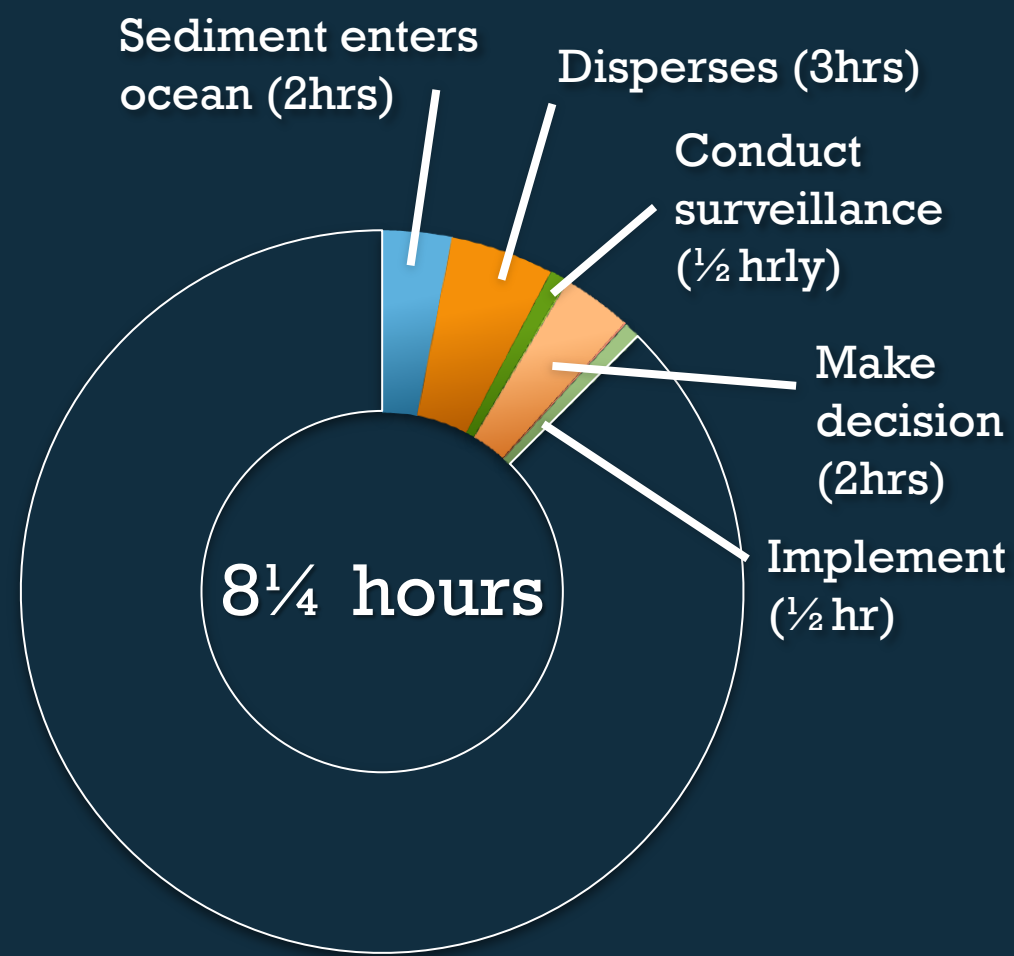
2.7 days from Input to Output.
0.5 days to impact.
No "Second Chance"

Latency in dredge controls



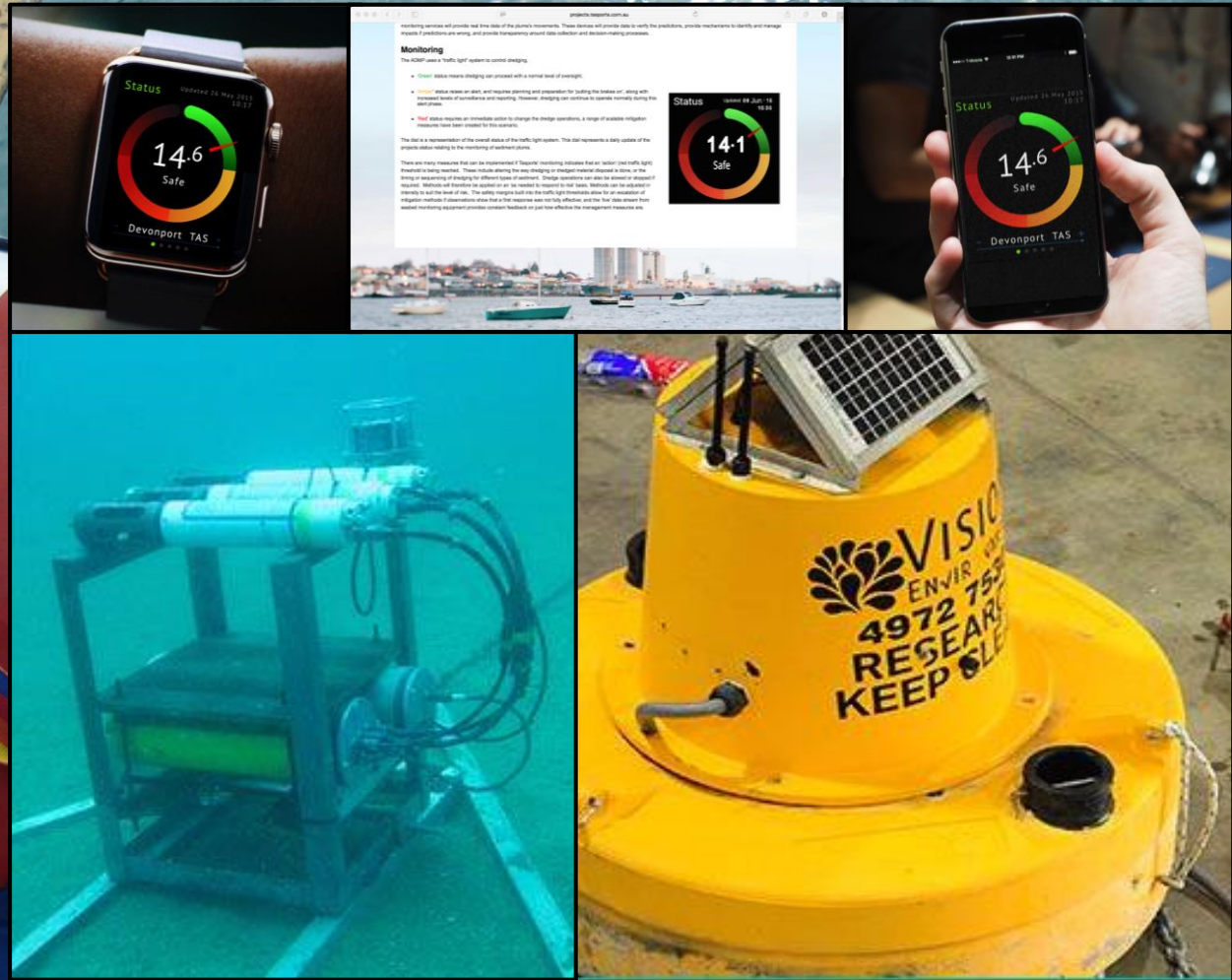
With optimized workflow & measurement systems

Latency in dredge controls



8 1/4 hours from Input to Output.
12 hours to impact.
Still no “Second Chance”

Environmental monitoring



... measuring turbidity to manage dredging effects on corals

Trends & directions



... whose headlines will you wake up to on your next Project?

Trends & directions

- All available to professionals and campaigners alike
- Affordable for an individual or crowd-funded group



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... whose headlines will you wake up to on your next Project?

Stakeholder communications



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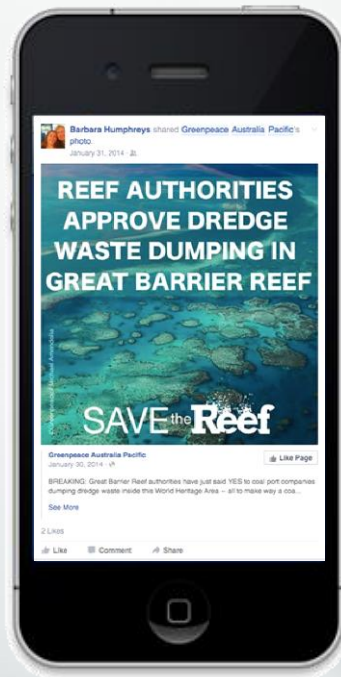
Traditional...

- Exceedingly large
- Late, to the point of irrelevance
- Dense with jargon
- Complex graphics
- Unknowable statistics
- Odd 3rd-person voice
- ... and compared to popular alternative media
 - No eye candy
 - No emotion



... for whom is this providing effective feedback?

Social-media's rising influence



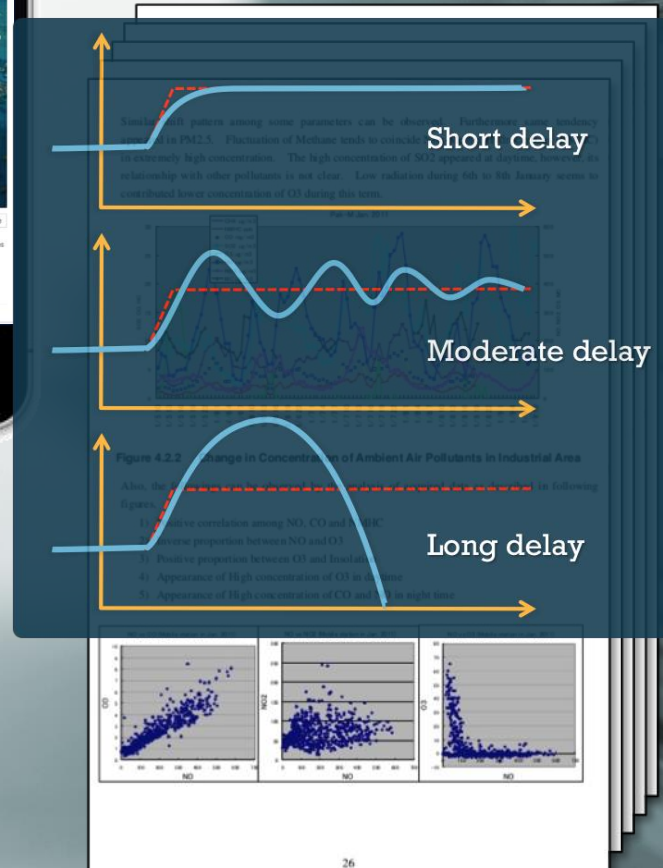
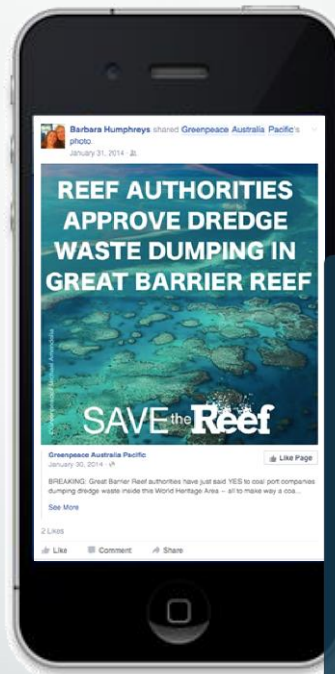
- 10-30 word 'hook'
- An eye candy photo



- 100-word 'story'
- Reports breaking news
- Jargon-free-zone
- Cool info-graphics
- Only 'crowd' statistics
- Passionate!
- Righteous



Stakeholder communications

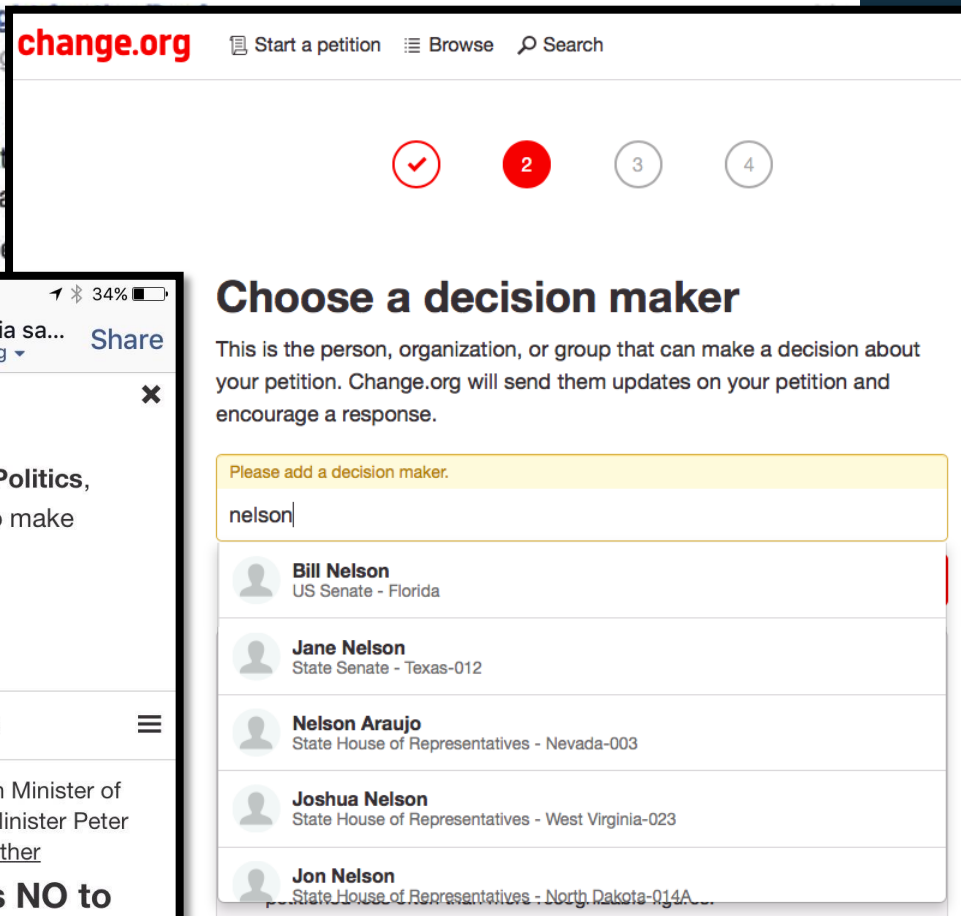
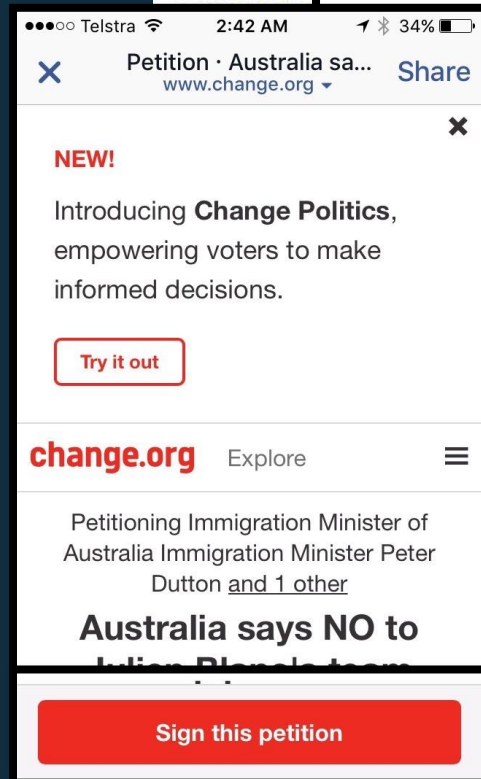


... which is more likely to be effective in defining the new 'system condition'?

Trends & directions



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Faster, and better targetted.

Part <4>.
Extreme
transparency



Making feedback FAST and
EFFECTIVE

enGauge

for
environmental
risk



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Status

Updated 26 May 2015
10:17



— Devonport TAS —



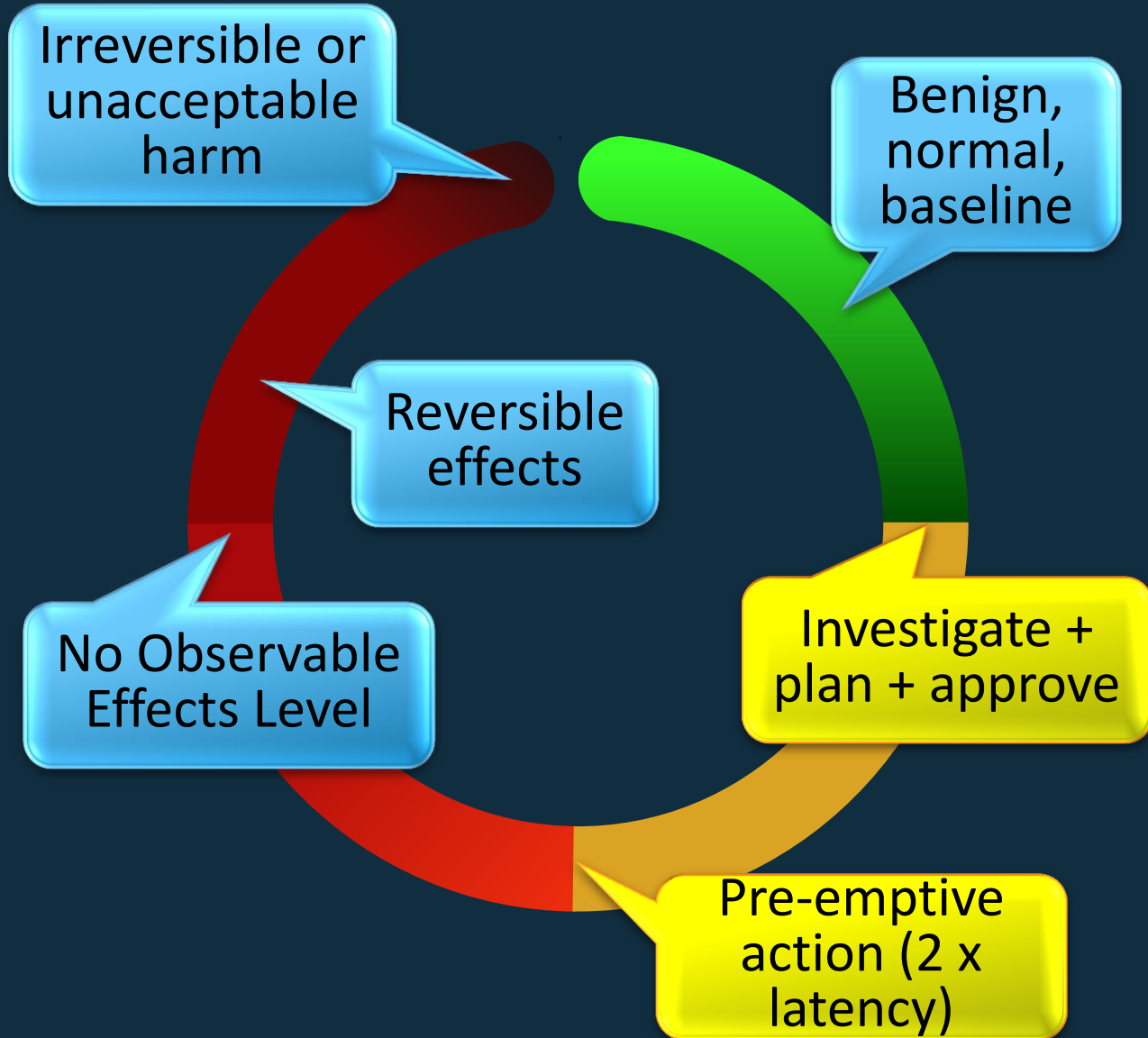
*...with supporting
information/explanation.*

enGauge

formal risk
metrics



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Quantifiable points.

Pre-approved algorithm.

enGauge

dredge
location &
history



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*...and dredging operational
data.*

enGauge

project
messaging
service



Updates

Brett Kettle - Environment

Second data collection completed.
100% data recovery.

10:09AM

Steve Lawley - Dredging

Refuelling this afternoon from
3pm. Expecting SW'ly blow as new
front arrives...

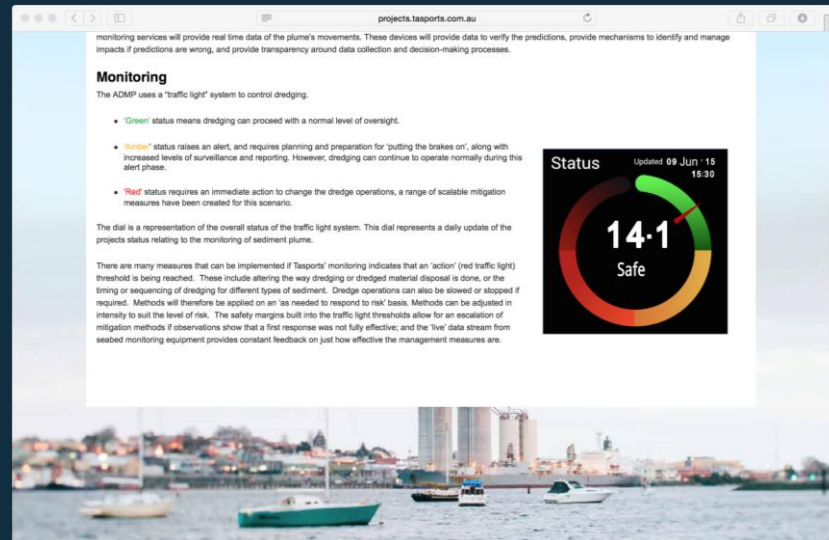
9:23AM

Devonport TAS



*...status updates from the
management team.*

Several output formats



Data feeds

- Manual or automatic data feeds from Contractor's equipment
- Simple file transfer or API calls
- Posted via cloud-based server



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Infrastructure & overheads are negligible.

Lessons learned?

- Extraordinary effectiveness of social media campaigns based around mistrust and protection of iconic species
- Massive changes in practices, timelines and costs
- Extreme transparency as a response to the general public



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Thank you.