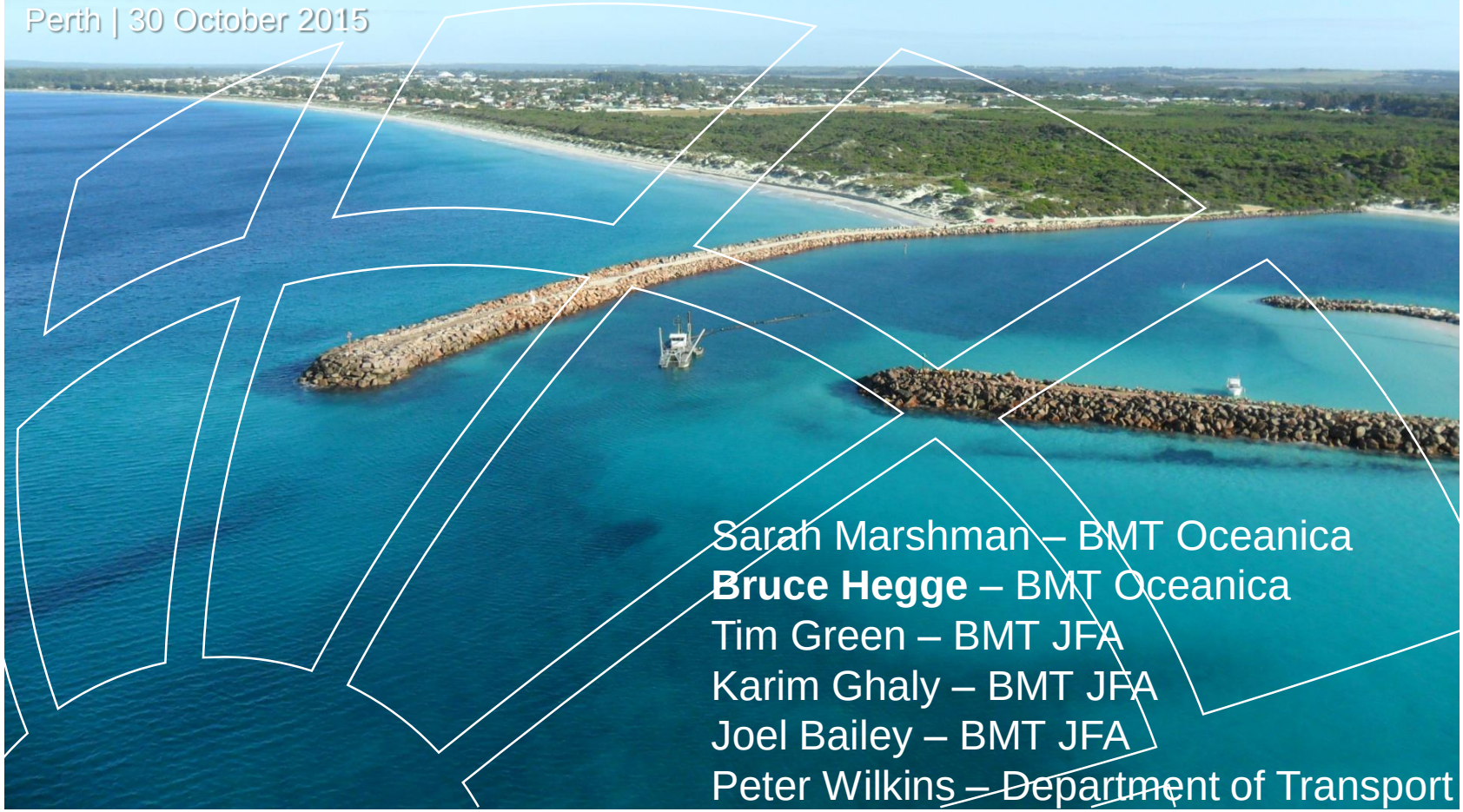
Western Australian Department of Transport – Statewide Maintenance Dredging Program

Environment Institute of Australia and New Zealand
Annual Conference
Perth | 30 October 2015



Sarah Marshman – BMT Oceanica
Bruce Hegge – BMT Oceanica
Tim Green – BMT JFA
Karim Ghaly – BMT JFA
Joel Bailey – BMT JFA
Peter Wilkins – Department of Transport

BMT Oceanica

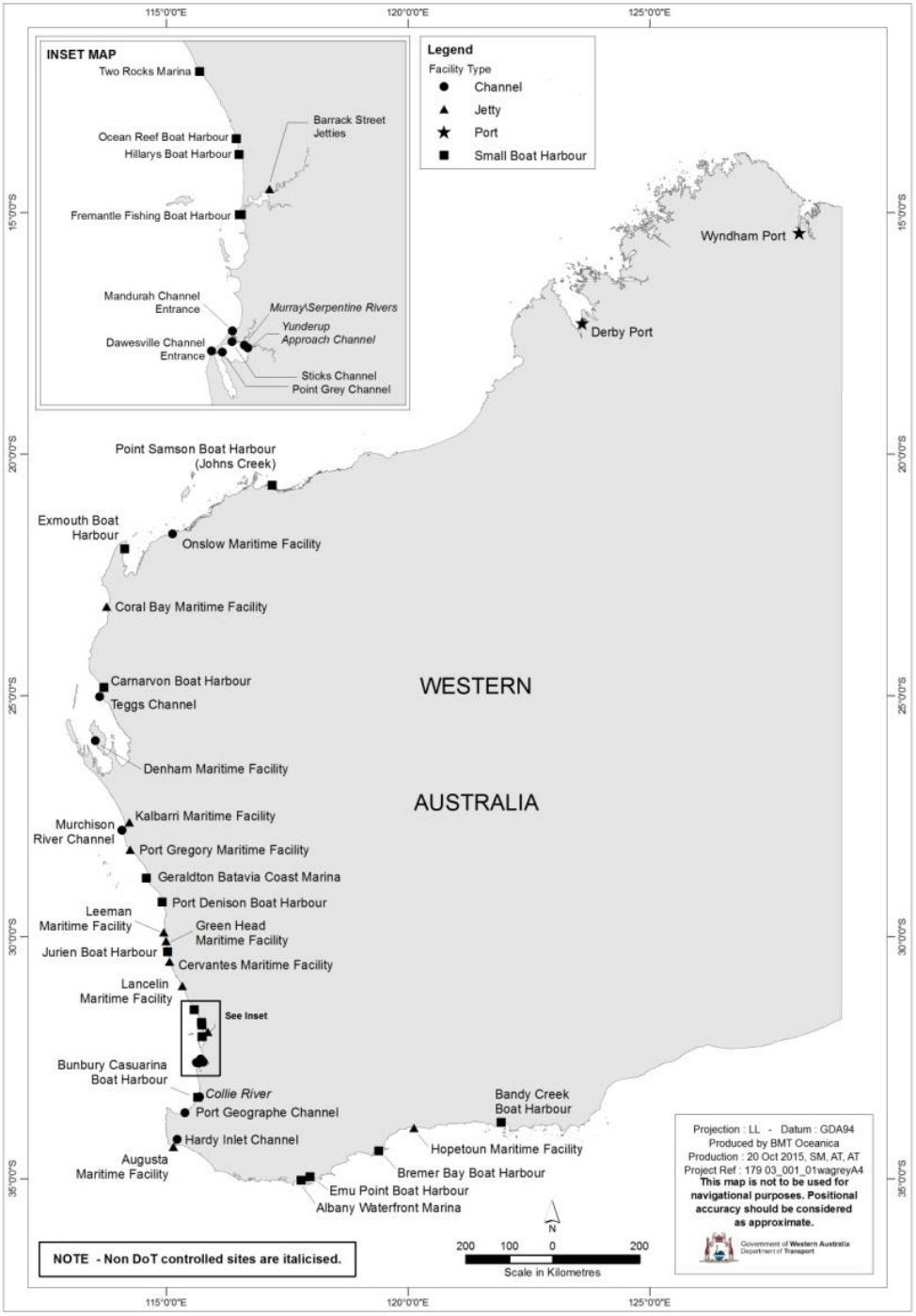
Outline

- Team
- Sites
- Methods
- Challenges
- Responses:
  - Long-term contracting
  - Environmental management framework
  - Dredge productivity
  - Remote monitoring
  - Data management

Team

- Department of Transport is Principal
- Dredging is coordinated via long-term contract:
  - Engineering (BMT JFA)
  - Environment (BMT Oceanica)
  - Dredging (CGC Dredging)


Ocean Reef



BMT Oceanica

Bandy Creek Boat Harbour

BMT Oceanica

Jurien Bay Boat Harbour

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Wyndham Port

Murchison River Channel

BMT Oceanica

Cutter Suction Dredge

Longreach Excavator

Slurry Pumping System (Slurrytrak)

Key Challenges

- Wide range of environmental settings
- Remote sites
- Diversity of facilities
- Range of dredging methods
- Multiple concurrent dredging campaigns
- Managing leaseholders within DoT facilities
- Managing public and environmental regulator expectations
- Limited budgets

Collaborative management

- Dedicated program management team
- Single focal point for liaison and representation
- Long-term collaborative relationship between principal, consultants AND contractor
- Regular review of schedules and budgets
- Document templates
- Weekly work in client office
- Monthly team meetings

Environmental Management Framework (EMF)

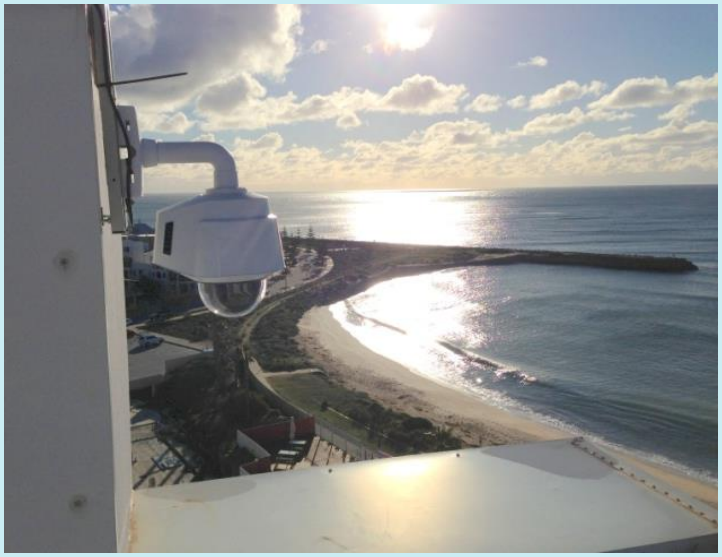
- Ensures efficient environmental management of dredging
- Includes:
  - Description of typical works
  - Relevant legislation, guidelines and approval pathways
  - Typical environmental and socio-economic issues
  - Methods for environmental sampling, reporting and monitoring
  - Environmental management and contingencies
  - Annual review and audit
- Regularly updated:
  - New/amended environmental policies and guidelines
  - Improved environmental understanding
  - Lessons learnt

Dredging productivity

- Long-term project experience
- Understanding of operating conditions
- Efficient and appropriate use of dredging equipment
- Investment and innovation in dredging equipment

Remote monitoring

- Stand-alone remote imagery units
- Autonomous webcams
- Imagery presented via secure web portal
- Simple, flexible, cost-effective
- Monitor seagrass wrack accumulation, shoreline movement, turbidity, construction progress.



Remote Imagery / ... / 2014

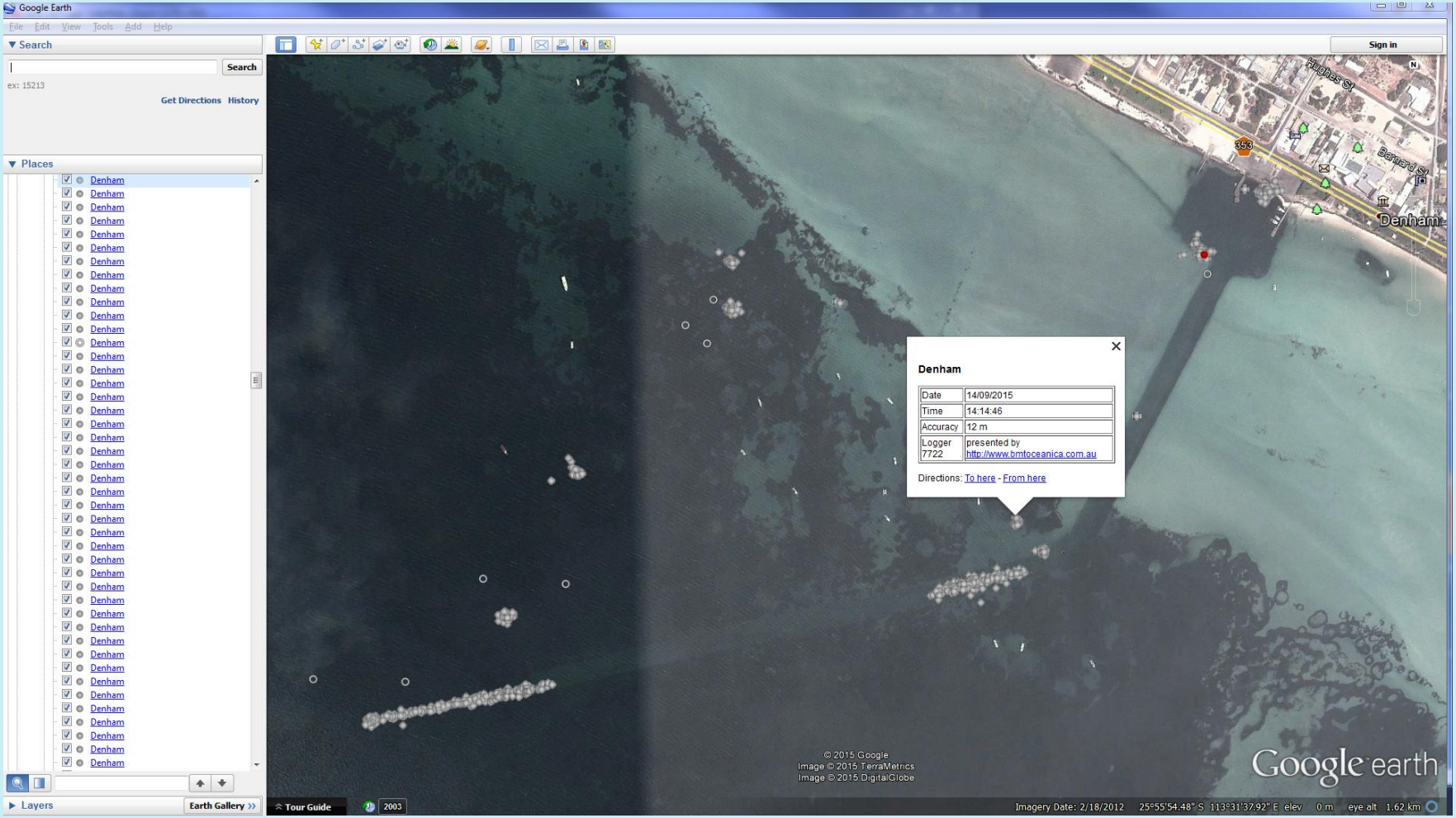
Shoreline west view

Created and last modified 08 Oct 2014

click to see slideshow

Feature	Attribute
Unit number	A122
Unit location	Hinging pole overlooking construction site B (site 2 on this map)
Installation date	26/09/14
Expected retrieval date	26/09/15
Image capture interval	Hourly
Daily image capture start time	06:00
Daily image capture end time	18:00
Daily image transmission time	12:00
External battery pack installed?	No

Remote positioning



BMT Oceanica

Document management

- Secure wiki-based document management portal
- Central repository
- Logical storage and presentation of data/documents
- Collaborative interface
- Full history-tracking of all changes
- Lessons learnt immediately captured and available
- Effective and transparent management of campaigns

Exmouth Boat Harbour

Created by Bruce Hegge, last modified by Sarah Marshman on 06 Feb 2015

Context

- Exmouth Boat Harbour
- Controlled by DoT
- Construction and maintenance formally approved by EPA in 1996
- Aerial photograph
- Exmouth Submergence Curve
- Exmouth Datum Overview

Historical Dredging/Bypassing Volumes

Year	Volume (m^3)	Comments
2015		
2011	9012	
2009	15,000	Dredging area: Southern sand trap Disposal site: Town Beach (north of yacht club)
2008	1000	Dredging area: Channel (end of southern breakwater) Disposal site: Landfill
2007		No dredging, just sediment sampling
2006	10,000	Dredging area: Southern sand trap Disposal site: Town Beach
July 2004	18,400 (incl. 9380 from 2004 dredging)	Dredging area: Southern sand trap Disposal site: Local fill sites
June 2004	9380	Dredging area: channel

Success

- Long-term collaborative contracting
- Program management not project management
- Environmental Management Framework
- Innovations:
  - Increased dredging productivity
  - Remote monitoring systems
  - Document and data management system