

# Investment Decision Making Inputs

CSIRO & Oceans and Atmosphere Business Unit level analysis

4 December 2015



# Oceans and Atmosphere Impact Strategy

IMPACT STRATEGY ON A PAGE

## GOAL

## IMPACT AREAS

## IMPACT STATEMENTS

## ROLES

### INTERNAL PROGRAMS

### OTHER BUSINESS UNIT

 To boost Australia's prosperity and wellbeing through solutions that enable the sustainable economic, social and environmental use of Australia's marine estate and management of the atmospheric environment.








- Protection of the marine and atmospheric environment and enhanced security
- Emergency response and preparedness
- Unlocking the Blue Economy

- Oceans and sea-level change assessments:** To increase the public and government's knowledge about past and future oceans and sea level change based on the latest ocean observing and satellite technology and model data to help inform adaptation and mitigation strategies by 2025.
- Weather and climate extremes information to manage disaster risk:** Engage with and build capacity of the Australian government, neighbouring nations and private industries to ensure inclusion of the latest information about weather and climate extremes in risk assessments for better prevention, planning, response and recovery to weather and climate extremes to help reduce economic, social and environmental costs.
- Solutions for sustainable coastal development:** Enable sustainable multiple-use of coastal environments by providing government and industry with the decision support and eco-engineering solutions to manage and resolve industrial and environmental conflicts among stakeholders to increase social cohesion (2025).
- Conservation of marine biodiversity:** Monitoring and evaluation tools for use by Commonwealth and Regional managers to ensure the sustained management and conservation of Australia's and Regional Partners, marine biodiversity by 2020.
- Greenhouse and ozone depleting gases, air quality and human health:** Improve the formation of policy, reporting and regulatory obligations by providing international committees with a world class integrated observing system and modelling capability that can track and quantify the influences of greenhouse and ozone depleting gases, reactive gases and aerosols on regional and global climate, air quality and human health.
- Climate baseline and projections, to guide resource management, green energy and response action:** Improve response actions to climate change by the energy sector, ecosystem resource managers and climate science communities, including mitigation strategies, through ocean-atmosphere modelling and assessment of Australia's ecosystem, economy, mix of energy sources and terrestrial environment.
- Australian marine science infrastructure:** In partnership with external infrastructure providers, build and deliver unique marine science capability by 2025 to the Australian marine science community, to increase the understanding and knowledge of atmospheric and marine processes to secure stronger sovereignty over Australia's Exclusive Economic Zone.
- Ocean forecasting systems:** Help reduce the loss of lives through better search and rescue operations and to increase national security by providing ocean observations and forecasts to marine industries and governments to improve oil spill monitoring and mitigation, increase efficiency and provide safer design of marine infrastructure.
- Coastal intelligence transformed:** Develop and apply next-generation monitoring, modelling and information systems that provide governments and industries with the capability to implement environmental intelligence systems within Australia that effectively and comprehensively assess, anticipate, communicate the condition and trajectory of coastal assets and national preparedness to respond to emerging threats coastal inundation, pollution events and bio-invasives (2025).
- Environmental support for offshore oil and gas sector:** To provide the Australian Oil and Gas Industry with baseline characterisation, tools and ongoing advice to assist in the management of their obligations under environmental policy and regulations for the protection of the coastal and ocean environments.
- Future blue industries:** Develop technologies, capacity and monitoring /response systems that sustainably grow existing and emerging coastal industries to provide increased employment opportunities for coastal communities.
- Managing multiple-uses:** Innovative socio-ecological decision support toolkit for use by government and industry stakeholders, leading to more efficient approvals, improved governance and community support in the management of multiple uses, in the marine environment.
- Sustainable marine resources:** Assessment methods, models and harvest strategies for uptake by both Commonwealth and Regional resource managers to build capacity, improve fisheries management and ensure sustainable resource use, resulting in a reduction in overfished stocks and enhanced food security by 2018.
- Next generation marine instrumentation and systems:** Design and deliver next generation marine instrumentation and systems for marine industries and the research community in order to increase knowledge and productivity in aquaculture, improve efficiency and safety in coastal marine assessments and reduce costs associated with data acquisition.



**ROLE KEY**  
 = Lead  = Support

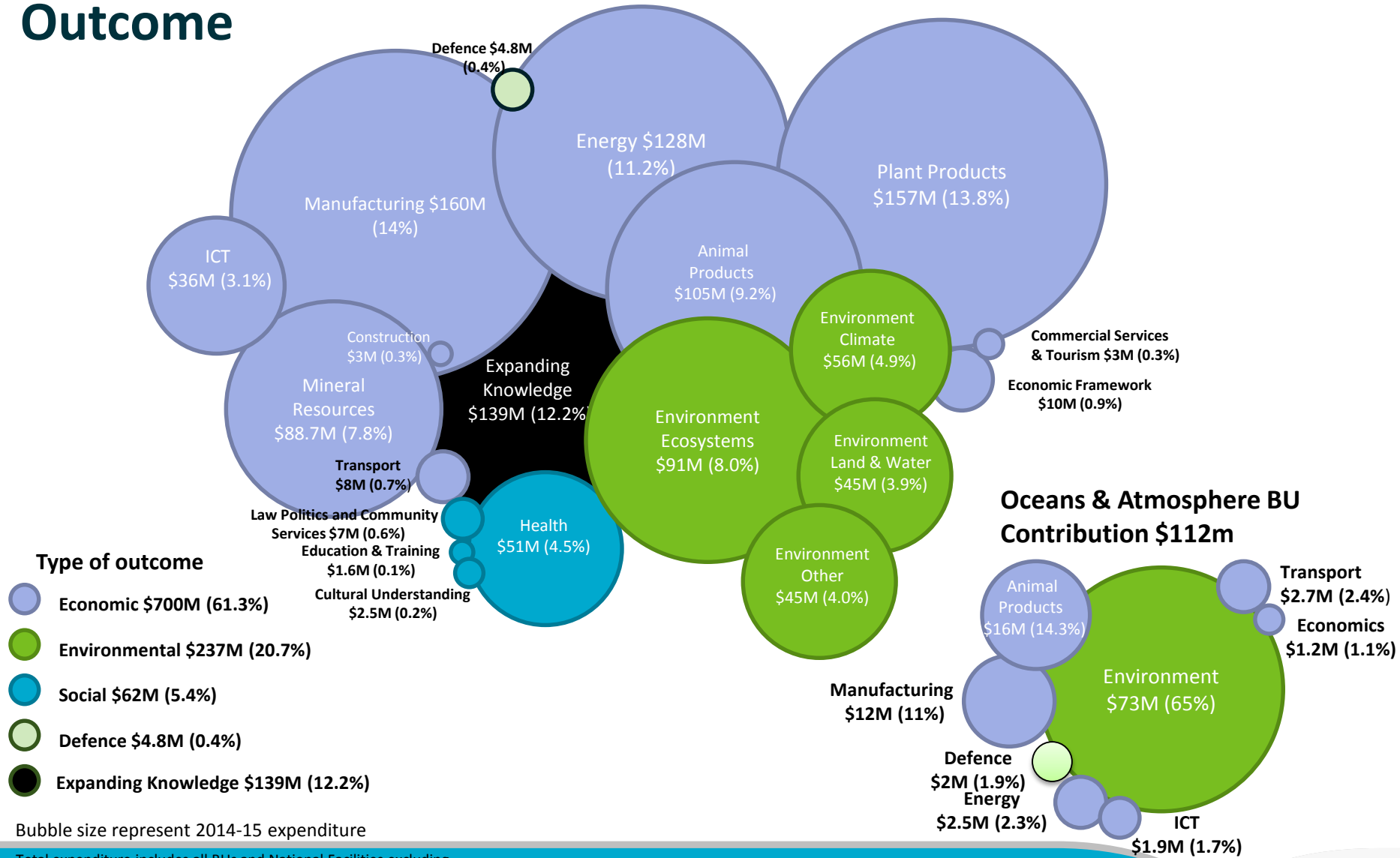
- PROGRAMS**
-  Ocean and Climate Dynamics
  -  Earth System Assessment
  -  Coastal Development and Management
  -  Marine Resources and Industries
  -  Engineering and Technology

- OTHER BUSINESS UNITS**
-  Agriculture
  -  Data61
  -  Energy
  -  Land and Water
  -  Earth Observation Informatics TCP
  -  National Facilities and Collections
  -  Food and Nutrition

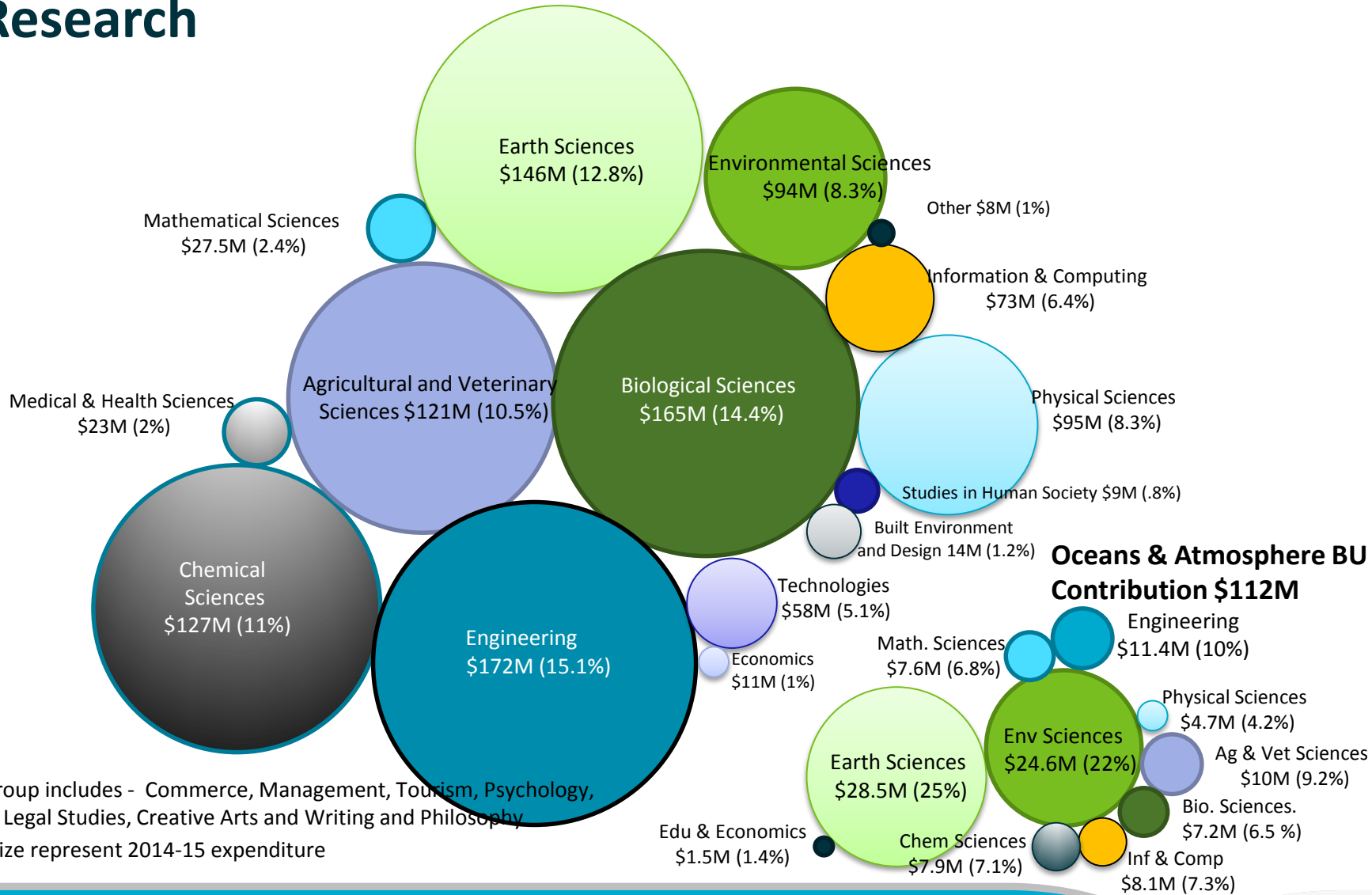
Source: Business Unit Strategic Plans



# CSIRO & Oceans and Atmosphere Investment by Outcome



# CSIRO & Oceans and Atmosphere Investment by Field of Research

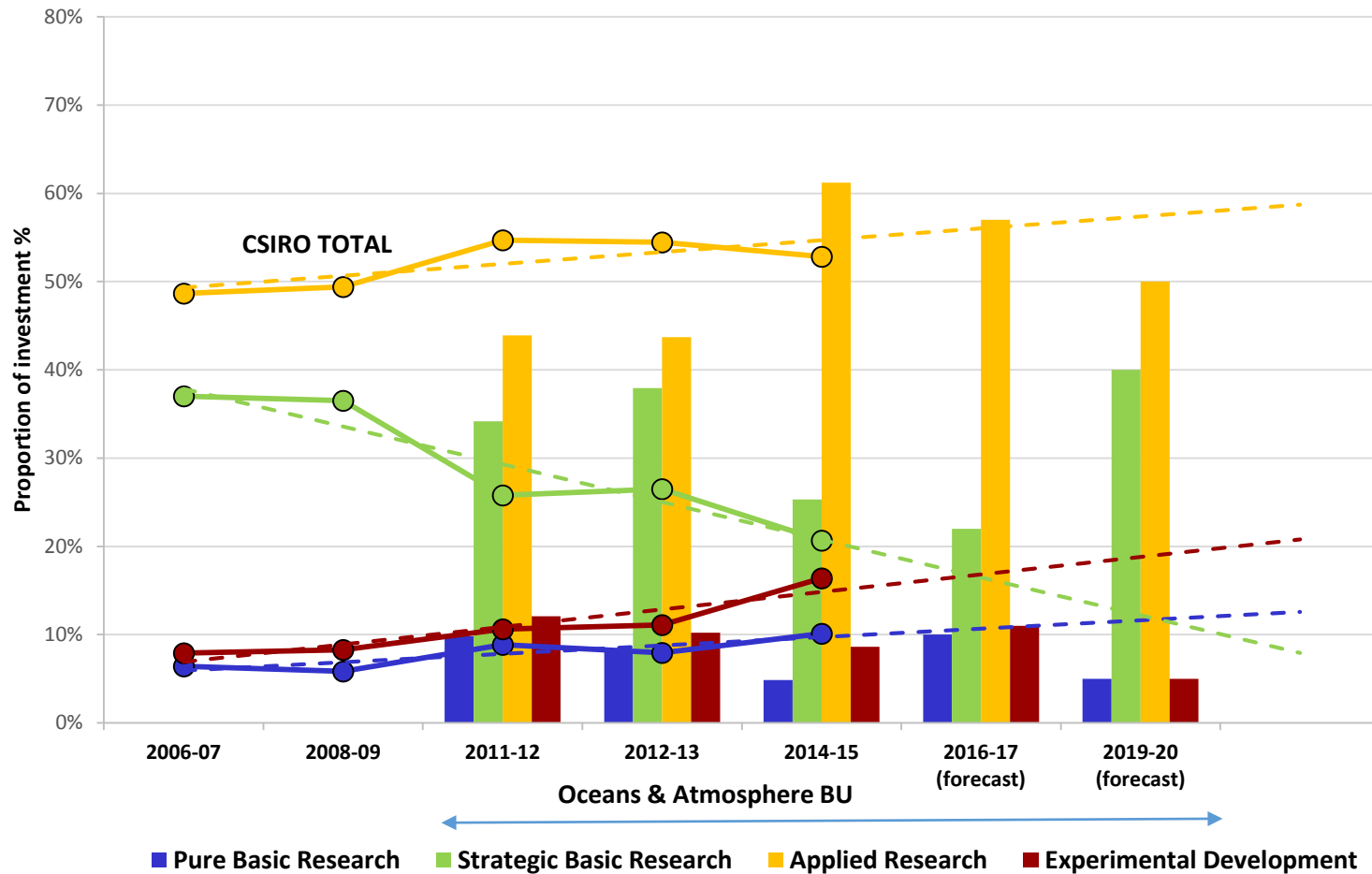


Total expenditure includes all BUs and National Facilities excluding CSIRO Services, and ESS



# Oceans and Atmosphere Portfolio by “Type of Activity”

Business Unit vs. CSIRO trend



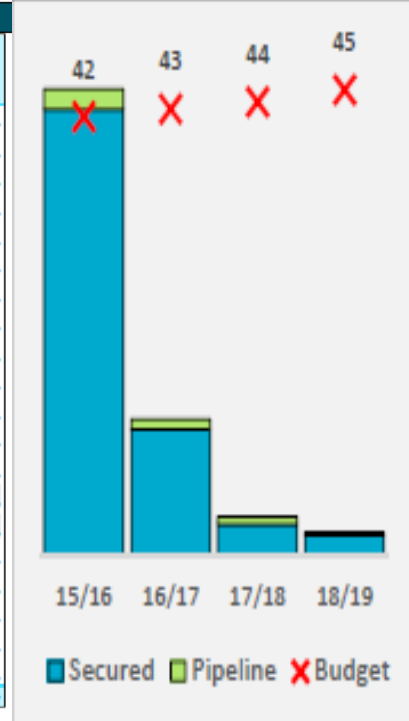
# External Revenue Pipelines

## Oceans and Atmosphere Business Unit snapshot as at 31 October 2015

Business Unit: Oceans and Atmosphere					Month: Oct15					All amounts \$'000				
Program	Year Budget	Weighted Pipeline			Gap	YTD Budget	YTD Actual	Variance	% of Year's budget earned	Remaining to Earn	2015/16 Year			
		Secured	Opportun.	Total							Unweighted 50,962			
Management Oceans and Atmosphere	0	0	0	0	0	0	0	0%	0	Secured 28,363				
Ocean & Climate Dynamics	7,500	7,059	77	7,136	(364)	2,500	2,606	106	35%	4,894	Actual 14,674			
Earth System Assessment	7,500	5,177	111	5,288	(2,212)	2,500	1,490	(1,010)	20%	6,010				
Coastal Development and Management	9,969	5,831	828	6,658	(3,311)	3,323	1,975	(1,348)	20%	7,994				
Marine Resources and Industries	10,800	17,500	871	18,371	7,571	3,600	5,063	1,463	47%	5,737				
Engineering and Technology	6,500	7,470	18	7,488	988	2,167	3,539	1,372	54%	2,961				
<b>Total</b>	<b>42,269</b>	<b>43,037</b>	<b>1,904</b>	<b>44,942</b>	<b>2,673</b>	<b>14,090</b>	<b>14,674</b>	<b>584</b>	<b>35%</b>	<b>27,595</b>				

### Top 20 Opportunities in the Pipeline : from current year out

Opportunity description	Prime Customer	Opportunity Stage	Probability to Close (%)	Duration (years)	WOL Project Value	WOL External Revenue	Average Revenue p.a	External Revenue Ratio to CSIRO
CSSNET EIF Funded Research Infrastructure	CO2CRC Limited	Qualify	10	1	8,730	8,423	8,423	96%
Integrated Pest Management of Crown-of-Thorns Starfish Reef and Rainforest Research Cen	Startfish	Create	90	3	4,239	3,000	1,000	71%
NESP Biodiversity Director Salary	University of Tasmania	Qualify	60	6	3,553	2,040	340	57%
Global Ocean Biodiversity Initiative (UK) & Int'l Union for O2D Migration - Internal Use Only		Qualify	30	3	1,828	1,785	595	98%
NESP Marine Biodiversity Hub Project A3 - A national po	University of Tasmania	Qualify	10	2	3,384	1,692	781	50%
NESP Marine Biodiversity Hub Project - A2 - Quantificati	University of Tasmania	Qualify	10	3	2,202	1,101	413	50%
Marine M & V Method Development (CCS Baselines)	CO2CRC Limited	Qualify	10	3	1,800	900	300	50%
NESP Marine Biodiversity Hub Project A1 - Northern Ausl	University of Tasmania	Qualify	10	2	1,689	845	507	50%
SBT gene-tagging pilot study	Commission for the Conservation o	Approve	100	3	1,362	816	297	60%
2013/803-Survey, Stock Assessment and MSE for the Tor Australian Fisheries Management		Qualify	60	1	870	609	609	70%
John Stocker Fellowship - Aimee Slangen - Solving the s Science and Industry Endowment F		Qualify	30	3	1,551	552	179	36%
NESP Marine Biodiversity Hub Project - B2 - SoE reportin	University of Tasmania	Qualify	10	2	1,100	550	330	50%
ABRS Taxonomy of Gelationous Organisms	Department of the Environment	Endorse	#	3	810	540	180	67%
		Create	10	1	533	533	1,067	100%
Future Reef MAP2	Great Barrier Reef Foundation	Qualify	30	2	500	500	214	100%
NESP Jellyfish Proposal	Department of the Environment	Qualify	60	3	912	456	152	50%
Continuous Water Quality Monitoring - II	Great Barrier Reef Foundation	Qualify	60	1	800	400	800	50%
2015/0823-Monitoring the traditional take of finfish spec	Australian Fisheries Management	Qualify	60	2	672	400	200	59%
NESP RV2-Grey Nurse Shark Close-Kin Mark-Recapture ( University of Tasmania		Create	10	2	570	285	190	50%
NESP Marine Biodiversity Hub Project - D2 - Analysis and	University of Tasmania	Qualify	10	2	510	255	153	50%
<b>Total</b>					<b>37,616</b>	<b>25,682</b>		<b>68%</b>



# Oceans and Atmosphere and Program capability mapping

Based on project plan data (2014-15)

DEPLOYMENT INTENTIONS as recorded in SAP Project Plans FY2015

	AGRICULTURE	ENERGY	FOOD & NUTRITION	HEALTH & BIOSECURITY	LAND & WATER	MANUFACTURING	MINERAL RESOURCES	OCEANS & ATMOSPHERE	DATA61	NATIONAL FACILITIES & COLLECTIONS	NET	
<b>OCEANS AND ATMOSPHERE</b>	3	6	1		6	2			1	24		
	1	3			14	1			7	1	-16	
R05P01: Ocean and Climate Dynamics	2				1			19				
								6	2		-14	
R05P02: Earth System Assessment		6										
					1	1			3		-1	
R05P03: Coastal Development and Management			1		3	1			1			
	1				11				12	1	-3	
R05P04: Marine Resources and Industries	1				1			10		1		
		3							10	4	1	+5
R05P05: Engineering and Technology								3		23		
					1				25		+0	
	Exports: Deployment OUT			Imports: Deployment IN								

Source: SAP Project Plan data as at Feb 2015

# Oceans and Atmosphere and Program KPI Performance

## KPI#1: Impact Return on Investment

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	4.1	4.1	4.1	4.2	4.2	4.3
<b>OCEANS &amp; ATMOSPHERE</b>	4.6	>4.6	>4.6	>4.6	>4.6	>4.6
Ocean & Climate Dynamics	4.4	4.4	4.4	4.4	4.4	4.4
Earth System Assessment	NA	4.3	4.4	4.4	4.5	4.5
Coastal Development & Management	4.5	4.5	4.5	4.5	4.5	4.5
Marine Resources & Industries	4.7	4.7	4.7	4.7	4.7	4.7
Engineering & Technology	NA	4.1	4.1	4.2	4.2	4.3

Source: Business Unit Strategic Plans



# Oceans and Atmosphere and Program KPI Performance

## KPI#2: Customer Satisfaction

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	<b>8.2</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>8.2</b>	<b>&gt;8</b>				
<b>Ocean &amp; Climate Dynamics</b>	<b>NA</b>					
<b>Earth System Assessment</b>	<b>NA</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>
<b>Coastal Development &amp; Management</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Marine Resources &amp; Industries</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Engineering &amp; Technology</b>	<b>NA</b>	<b>8.6</b>	<b>8.6</b>	<b>8.6</b>	<b>8.6</b>	<b>8.6</b>

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program KPI Performance

## KPI#3: Active Licences

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	<b>276</b>	<b>280</b>	<b>290</b>	<b>300</b>	<b>320</b>	<b>350</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>
Ocean & Climate Dynamics	NA	NA	NA	NA	NA	NA
Earth System Assessment	NA	0	0	0	0	0
Coastal Development & Management	NA	NA	NA	NA	NA	NA
Marine Resources & Industries	NA	NA	NA	NA	NA	NA
Engineering & Technology	NA	1	2	3	3	3

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program KPI Performance

## KPI#4: External Revenue Ratio

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	<b>38%</b>	<b>39%</b>	<b>40%</b>	<b>41%</b>	<b>43%</b>	<b>45%</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>39%</b>	<b>39%</b>	<b>42%</b>	<b>43%</b>	<b>44%</b>	<b>44%</b>
<b>Ocean &amp; Climate Dynamics</b>	<b>43%</b>	<b>42%</b>	<b>43%</b>	<b>43%</b>	<b>44%</b>	<b>44%</b>
<b>Earth System Assessment</b>	<b>29%</b>	<b>33%</b>	<b>35%</b>	<b>36%</b>	<b>36%</b>	<b>36%</b>
<b>Coastal Development &amp; Management</b>	<b>33%</b>	<b>34%</b>	<b>35%</b>	<b>35%</b>	<b>36%</b>	<b>36%</b>
<b>Marine Resources &amp; Industries</b>	<b>42%</b>	<b>42%</b>	<b>43%</b>	<b>43%</b>	<b>44%</b>	<b>44%</b>
<b>Engineering &amp; Technology</b>	<b>42%</b>	<b>42%</b>	<b>42%</b>	<b>43%</b>	<b>44%</b>	<b>45%</b>

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program KPI Performance

## KPI#5: Internal & external Collaboration

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	<b>1</b>	<b>1.05</b>	<b>1.1</b>	<b>1.15</b>	<b>1.2</b>	<b>1.25</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Ocean &amp; Climate Dynamics</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Earth System Assessment</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Coastal Development &amp; Management</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Marine Resources &amp; Industries</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>Engineering &amp; Technology</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program KPI Performance

## KPI#6: Diversity & Inclusion

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	11	12	13	14	15	16
<b>OCEANS &amp; ATMOSPHERE</b>	9	>11	>11	>11	>11	>11
Ocean & Climate Dynamics	10	10	11	11	12	13
Earth System Assessment	10	16	16	17	17	18
Coastal Development & Management	22	23	24	24	25	25
Marine Resources & Industries	8	10	10	12	15	16
Engineering & Technology	5	5	6	6	7	7

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program Diversity Profile

## KPI#6: Diversity & Inclusion (supplementary information)

	Leaders					FTE	All Staff	
	FTE	Female FTE	% Leaders (Female)	NESB FTE	% Leaders (NESB)	Total	ATSI All staff	% All staff
<b>CSIRO</b>	<b>1102</b>	<b>313</b>	<b>28.4%</b>	<b>179</b>	<b>16.2%</b>	<b>5209</b>	<b>63</b>	<b>1.2%</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>83</b>	<b>17</b>	<b>20.5%</b>	<b>11</b>	<b>13.3%</b>	<b>405</b>	<b>3</b>	<b>0.7%</b>
Ocean & Climate Dynamics	16	4	25.0%	3	18.8%	71		0.0%
Earth System Assessment	17	2	11.8%	5	29.4%	78		0.0%
Coastal Development & Management	17	3	17.6%	2	11.8%	99	3	3.0%
Marine Resources & Industries	15	3	20.0%		0.0%	79		0.0%
Engineering & Technology	13	2	15.4%	1	7.7%	69		0.0%

Source: HR Data as at 30 September 2015

# Oceans and Atmosphere and Program KPI Performance

## KPI#7: Innovation Capacity

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	55%	56%	57%	58%	59%	60%
<b>OCEANS &amp; ATMOSPHERE</b>	52%	54%				
Ocean & Climate Dynamics	52%	52%	53%	53%	55%	55%
Earth System Assessment	52%	55%	55%	60%	60%	60%
Coastal Development & Management	52%	55%	60%	60%	60%	60%
Marine Resources & Industries	52%	55%	60%	60%	60%	60%
Engineering & Technology	52%	53%	53%	54%	54%	55%

Source: Business Unit Strategic Plans

# Oceans and Atmosphere and Program KPI Performance

## KPI#8: Safety Performance

	Actual	Target				
	2015	2016	2017	2018	2019	2020
<b>CSIRO</b>	<b>14.2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>OCEANS &amp; ATMOSPHERE</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Ocean & Climate Dynamics		0	0	0	0	0
Earth System Assessment		0	0	0	0	0
Coastal Development & Management		0	0	0	0	0
Marine Resources & Industries		0	0	0	0	0
Engineering & Technology		0	0	0	0	0

Source: Business Unit Strategic Plans



# Oceans and Atmosphere Budget Validation Template

To be completed by BUs ahead of deep dives

Business Unit Budget Validation		Oceans & Atmosphere															
4 Year Budget including Strategy Adjustments					Budget Validation - Business Unit to complete					Variance							
Oceans & Atmosphere		2015/16	2016/17	2017/18	2018/19	Oceans & Atmosphere		2015/16	2016/17	2017/18	2018/19	Oceans & Atmosphere		2015/16	2016/17	2017/18	2018/19
Direct Appropriation	26,321	26,724	26,730	27,418	Direct Appropriation					Direct Appropriation	- 26,321	- 26,724	- 26,730	- 27,418			
External Revenue - CCS	42,554	46,447	48,653	50,594	External Revenue - CCS					External Revenue - CCS	- 42,554	- 46,447	- 48,653	- 50,594			
External Revenue - IP	-	-	-	-	External Revenue - IP					External Revenue - IP	-	-	-	-			
External Revenue - Other	700	721	743	765	External Revenue - Other					External Revenue - Other	- 700	- 721	- 743	- 765			
<b>Total Revenue</b>	<b>69,575</b>	<b>73,892</b>	<b>76,126</b>	<b>78,777</b>	<b>Total Revenue</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>Total Revenue</b>	<b>- 69,575</b>	<b>- 73,892</b>	<b>- 76,126</b>	<b>- 78,777</b>			
Labour	49,692	50,882	50,842	51,859	Labour					Labour	- 49,692	- 50,882	- 50,842	- 51,859			
Operating	19,882	22,156	24,336	26,066	Operating					Operating	- 19,882	- 22,156	- 24,336	- 26,066			
<b>Total Expenses</b>	<b>69,575</b>	<b>73,038</b>	<b>75,178</b>	<b>77,925</b>	<b>Total Expenses</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>Total Expenses</b>	<b>- 69,575</b>	<b>- 73,038</b>	<b>- 75,178</b>	<b>- 77,925</b>			
						<b>Additional Capex Requirement</b>											
<b>Staffing Levels</b>		<b>2015/16</b>				<b>Staffing Levels</b>		<b>2015/16</b>	<b>2016/17</b>	<b>2017/18</b>	<b>2018/19</b>	<b>Staffing Levels</b>		<b>2015/16</b>			
Target ASL	389				Target ASL					Target ASL	-389						
YTD Actual - 30/09/15	370				YTD Actual - 30/09/15	370				YTD Actual - 30/09/15	0						
						<b>Comments</b>											