

# Natural Capital Accounting in St. Helena

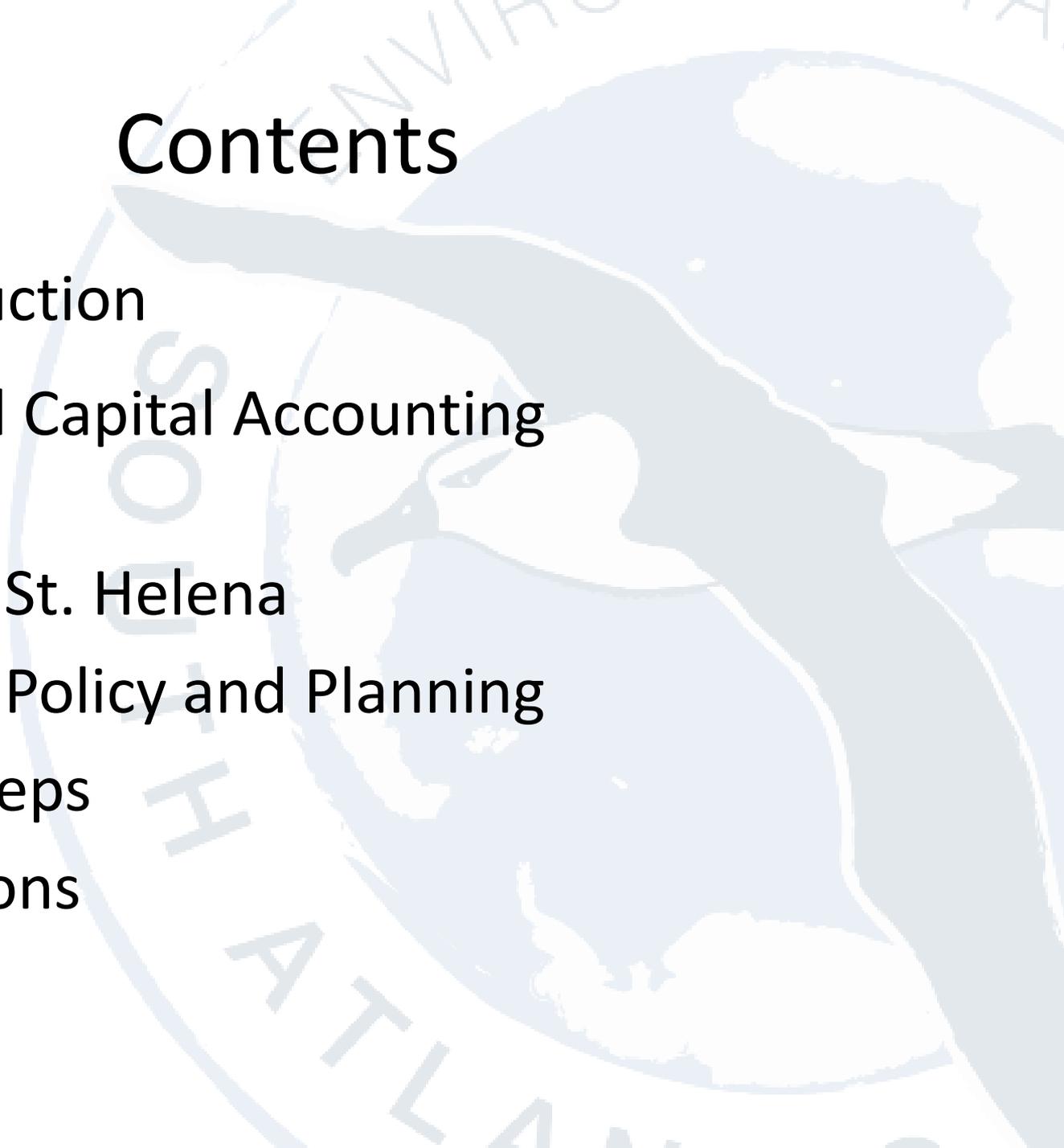
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Nature's Benefits: Natural Capital in  
the South Atlantic

12 March 2019



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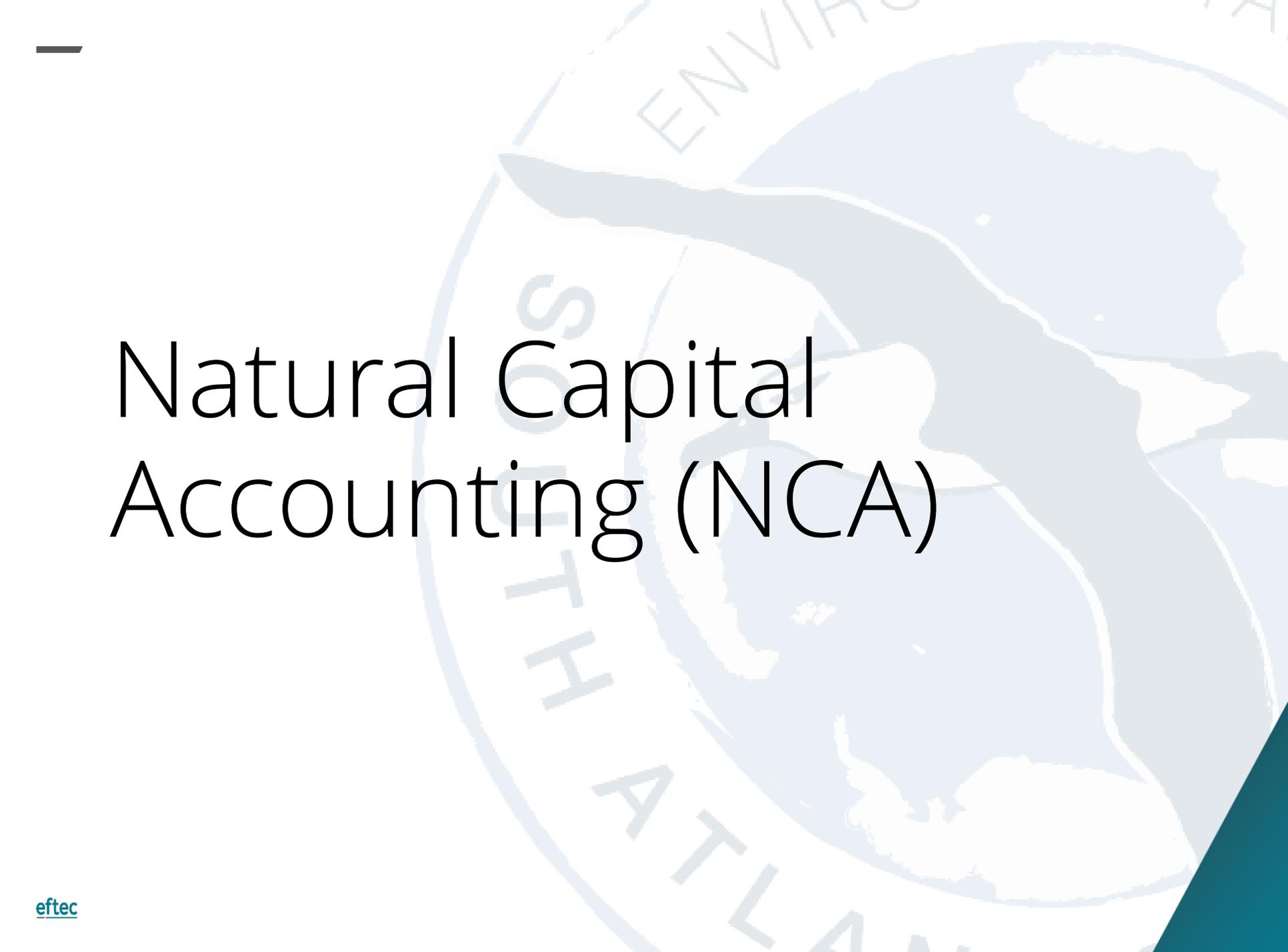
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# Introduction

- **eftec – Economics for the environment consultancy**
  - Specializing in economic valuation, economic appraisal, environmental policy design, and green national accounting
  - Contribute to UK national natural capital accounts for Defra/ONS, advisory to Eurostat on implementation of UN System for Environmental Economic Accounting, and developed numerous sub-national Natural Capital Accounts
- **JNCC – Joint Nature Conservation Committee**
  - Providing economic capacity to the extensive Natural Capital work already being conducted across a number of workstreams in the Ots
  - Developing Natural Capital Accounting St. Helena, Turks and Caicos Islands, Anguilla and Montserrat

# What is environmental economics?

- Application of economics concepts and tools to environmental challenges
- Allows for an appreciation and understanding of environmental value in economic and policy discussion, and vice versa



# Natural Capital Accounting (NCA)

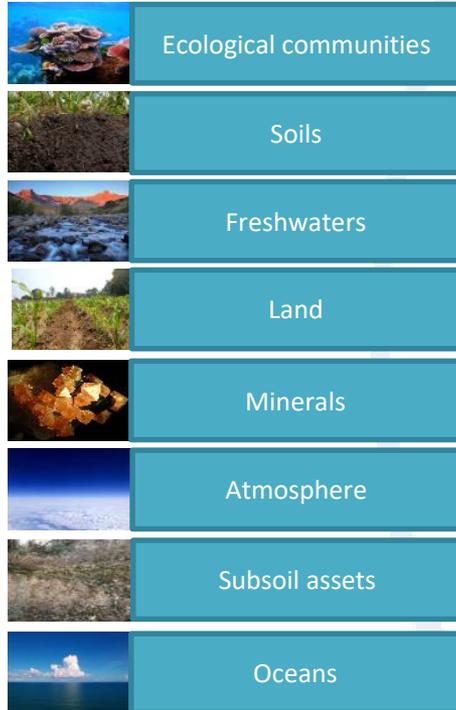
# Natural Capital Accounting

- If Natural Capital is a way to understand humans' relationship with (and dependence on) the environment
- Then Natural Capital Accounting is a way to help manage that relationship
- Should be viewed as an iterative process (rather than a 'product' or 'result')

# NCA concepts

- Flows → Stocks
  - Impacts → Dependencies
  - Measure → Value
- = More integrated, forward looking, decisions

## Natural capital stocks



Ecosystem Service  
Flows

Inputs from  
other capital

## Benefit flows



# Limitations of national economic accounting - GDP

- GDP measures economic transactions, but is used as a proxy for welfare in decision making
  - Thus environmental damage (e.g. oil spill) can actually increase GDP, problematic for policy
  - Transactions reflect current consumption of resources, not the underlying state of natural assets
  - Do not reflect climate change, or declines in biodiversity, fish stocks, soils, etc...
- = A requirement for a better understanding of how we use natural resources to support human welfare

# National Natural capital Accounting Initiatives

- UN System of Environmental – Economic Accounts (SEEA):
  - Central Framework (CF)
  - Experimental Ecosystem Accounts (EEA)
- KIP-INCA : Knowledge innovation project (KIP) Integrated system for Natural Capital and ecosystem services Accounting (- INCA)
- UN Wealth Accounting and Valuation of Ecosystem Services (WAVES)
- National ecosystem assessment's & corporate natural capital accounts

# Why Natural Capital Accounting?

*Natural capital accounts provide a structured and interconnected set of information relating to stocks of natural capital, and the flows of benefits from them*

- Communication:
  - “Ecosystem services” helped environmentalists talk to economists, “Natural capital accounts” help environmentalists talk to decision-makers
  - Help translate environmental sciences research and data into a format that can be used by policy people
  - “Environmental Assets” are something people want to have, rather than an obstacle to development
- Consistency of:
  - Process... repeatable
  - Presentation... understandable

# Natural capital accounts – how do they come together?

- Require data on:
  - what environmental assets are present
  - how people benefit from them
  - what value that is worth
- Developed as a set of component accounts

# Natural Capital Accounting Structure

## Extent

- what habitats do we have?

## Condition

- what quality are they?

## Physical flows

- what benefits do they provide?

## Monetary flows

- what are the values provided?

## Asset values

- what is the total value over time?

# Value Evidence

1. Market prices
  - Markets exist and prices reflect opportunity costs
2. Shadow prices
  - Market prices observed but need to be adjusted (e.g. taxes and subsidies)
3. Revealed preference methods (and stated preference methods)
  - Market prices do not exist but 'surrogate' markets and prices can be observed
4. Stated preference methods
  - Market prices and surrogate markets do not exist

Actual Market data

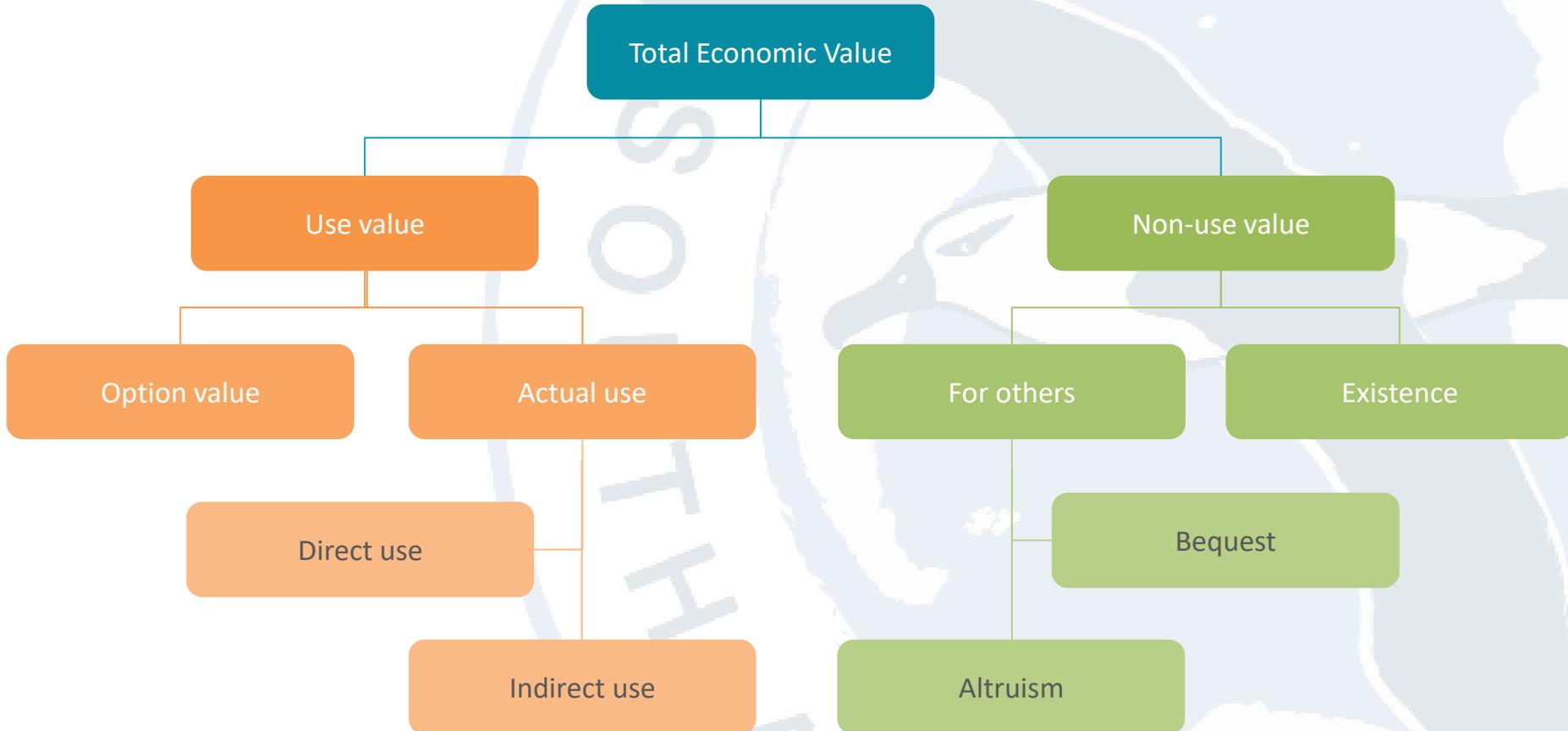


Surrogate market data:  
RP methods



Hypothetical market data:  
SP methods

# Total economic value



# NCA in St. Helena

# NCA in St. Helena

- An initial set of accounts, to evolve over time
- Data driven – what can we do with what is available?
- Identifying what data exists, where it is held, and how it can be used
- Compiling various data sources in a consistent format, in one location – the Natural Capital Account
- About setting up a process

# Benefits 'longlist'

Benefits	
Provisioning services	Food - Subsistence fisheries
	Food - Commercial fisheries
	Food - Crops/agriculture
	Food- Meat Production/ Livestock
	Food- Hunting
	Raw materials - Forest products
	Raw materials - Woods/lumber
	Energy
Regulating services	Erosion control
	Climate regulation/carbon sequestration
	Water quality regulation
	Air quality - filtering of air by trees/plants
Cultural services	Tourism (Marine and Terrestrial)
	Local recreation
	Historical and archaeological values
	Biodiversity/ Iconic species
Supporting services	Primary production
	Nutrient cycling
	Ecosystem protection
	Habitat provisioning

# Asset-service matrix – ‘shortlist’

Ecosystems		Marine		Terrestrial			
Benefits		Marine - Intertidal	Marine - Coastal / Supratidal	Forest & Woodland	Shrubland	Desert	Pasture / farmland
Provisioning	Fisheries						
	Agriculture						
	Meat Production						
	Forest Products						
Regulating	Carbon Storage						
	Carbon Sequestration						
Cultural	Tourism						

# Provisioning

- **Fishing** – market data and national statistics
- **Agriculture** – limited data
- **Meat production** – market data and national statistics
- **Forest products** – market data and national statistics

# Regulating

- **Carbon storage** – transfer values and published price of carbon
- **Carbon sequestration** - transfer values and published price of carbon
- Also:
  - Water cycle maintenance
  - Erosion control
  - Local climate regulation (i.e. shade, evapotranspiration)
  - Etc.

# Cultural

- Tourism – national statistics, tourism survey, supply side survey data, estimate of ecosystem dependence of expenditure
- Also:
  - Local recreation
  - Local cultural values
  - Landscape aesthetics
  - Iconic species
  - Health and wellbeing

# Physical flow

Benefit	Indicator	Baseline year	Unit	Notes
Fisheries	Tuna	196,823	kilos	
	Wahoo	14,144	kilos	
	Mackerel	1,524	kilos	
	Grouper	4,156	kilos	
	Conger	1,076	kilos	
	Cavalley	987	kilos	
	Bullseye	286	kilos	
	Skipjack	34,900	kilos	
	Marlin	979	kilos	
	Yellow-tail	762	kilos	
	Shark	174	kilos	
	Dorado	625	kilos	
Observer	20	kilos		
<b>Total weight</b>	<b>236,454</b>	<b>kilos</b>		
Agriculture	Honey		kilos	
	Other agricultural products		kilos	
	<b>Total</b>		<b>kilos</b>	
Meat Production	Pigs	1,111	kilos	
	Sheep	3,111	kilos	
	Cattle	47,784	kilos	
	<b>Total weight</b>	<b>132,134</b>	<b>kilos</b>	
Forest Products	Trees sold for firewood	441	tonnes	
	<b>Total weight</b>	<b>441</b>	<b>tonnes</b>	
Soil Carbon Storage	Avoided carbon release	(216,261)	tCO2e avoided	
	<b>Total</b>	<b>(216,261)</b>	<b>tCO2e avoided</b>	Placeholder value
Carbon Sequestration	Subtropical/Tropical Dry Forest	25,217	tCO2e	
	<b>Total</b>	<b>25,217</b>	<b>tCO2e</b>	Take this value with precaution
Tourism	Arrivals for tourism or holiday, non St Helenian	1,207	visitors	
	Arrivals for tourism or holiday, St Helenian	858	visitors	
	<b>Total</b>	<b>2,065</b>	<b>visitors</b>	

Preliminary results only

— subject to change

# Monetary flow

Benefit	Indicator	Baseline year	PV25	Unit	Notes
Fisheries	Tuna	948,688	16,183,066	£	
	Wahoo	69,589	1,187,083	£	
	Mackerel	7,422	126,605	£	
	Grouper	20,239	345,240	£	
	Conger	5,240	89,388	£	
	Cavalley	4,806	81,978	£	
	Bullseye	1,393	23,759	£	
	Skipjack	169,963	2,899,291	£	
	Marlin	4,768	81,330	£	
	Yellow-tail	3,710	63,286	£	
	Shark	847	14,455	£	
	Drum	2,045	51,930	£	
<b>Total</b>		<b>1,199,807</b>	<b>21,149,080</b>	£	
Agriculture	Exports of coffee	83,891	578,125	£	
	Honey	-	-	£	
	Other agricultural products	-	-	£	
	<b>Total</b>	<b>83,891</b>	<b>578,125</b>	£	
Meat Production	Pork	78,942	9,877,797	£	
	Lamb	80,695	583,606	£	
	Beef	409,029	6,977,361	£	
	<b>Total</b>	<b>1,018,665</b>	<b>17,376,764</b>	£	
Forest Products	Firewood	80,963	1,381,095	£	
	<b>Total</b>	<b>80,963</b>	<b>1,381,095</b>	£	
Soil Carbon Storage	Avoided carbon release	14,080,553	14,080,553	£	
	<b>Total</b>	<b>14,080,553</b>	<b>14,080,553</b>	£	Placeholder value
Carbon Sequestration	Subtropical/Tropical Dry Forest	1,641,880	37,962,203	£	
	<b>Total</b>	<b>1,641,880</b>	<b>37,962,203</b>	£	Take this value with precaution
Tourism	Non-Saints NC-dependent expenditure	800,000	13,646,694	£	
	Saints NC-dependent expenditure	600,000	10,235,021	£	
	<b>Total</b>	<b>1,400,000</b>	<b>23,881,715</b>	£	

**Preliminary results only**  
**— subject to change**

# St. Helena 2018 NCA – preliminary results

Benefit	Indicator	Quantity - Baseline year	Unit	Value - Baseline year	Unit	PV 25	Unit	Notes
Fisheries	Tuna	196,823	kilos	948,688	£	16,183,066	£	
	Wahoo	14,144	kilos	69,589	£	1,187,083	£	
	Mackerel	1,524	kilos	7,422	£	126,605	£	
	Grouper	4,156	kilos	20,239	£	345,240	£	
	Conger	1,076	kilos	5,240	£	89,388	£	
	Cavalley	987	kilos	4,806	£	81,978	£	
	Bullseye	286	kilos	1,393	£	23,759	£	
	Skipjack	34,900	kilos	169,963	£	2,899,291	£	
	Marlin	979	kilos	4,768	£	81,330	£	
	Yellow-tail	762	kilos	3,710	£	63,286	£	
	Shark	174	kilos	847	£	14,455	£	
	Dorado	625	kilos	3,045	£	51,938	£	
Jack	20	os	17	£	1,111	£		
<b>Total</b>	<b>25,411</b>	<b>kilos</b>	<b>1,239,077</b>	<b>£</b>	<b>21,199,100</b>	<b>£</b>		
Agriculture	Coffee	-	kilos	33,891	£	578,125	£	
	Honey	-	kilos	-	£	-	£	
	Other agricultural products	-	kilos	-	£	-	£	
	<b>Total</b>	<b>-</b>	<b>kilos</b>	<b>33,891</b>	<b>£</b>	<b>578,125</b>	<b>£</b>	
Meat Production	Pigs	8,170	heads	578,442	£	9,875,971	£	
	Sheep	11,000	kilos	30,950	£	523,006	£	
	Cattle	4,784	kilos	409,029	£	6,977,361	£	
	<b>Total</b>	<b>132,134</b>	<b>kilos</b>	<b>1,018,665</b>	<b>£</b>	<b>17,376,764</b>	<b>£</b>	
Forest Products	Trees sold for firewood	441	tonnes	80,963	£	1,381,095	£	
	<b>Total weight</b>	<b>441</b>	<b>tonnes</b>	<b>80,963</b>	<b>£</b>	<b>1,381,095</b>	<b>£</b>	
Soil Carbon Storage	Avoided carbon release	(216,261)	tCO <sub>2</sub> e a	14,080,553	£	14,080,553	£	
	<b>Total</b>	<b>(216,261)</b>	<b>tCO<sub>2</sub>e a</b>	<b>14,080,553</b>	<b>£</b>	<b>14,080,553</b>	<b>£</b>	Placeholder value
Carbon Sequestration	Subtropical/Tropical Dry F	25,217	tCO <sub>2</sub> e	1,641,880	£	37,962,203	£	
	<b>Total</b>	<b>25,217</b>	<b>tCO<sub>2</sub>e</b>	<b>1,641,880</b>	<b>£</b>	<b>37,962,203</b>	<b>£</b>	Take this value with caution
Tourism	Arrivals for tourism or holiday	1,207	visitors	800,000	£	13,646,694	£	
	Arrivals for tourism or holiday	858	visitors	600,000	£	10,235,021	£	
	<b>Total</b>	<b>2,065</b>	<b>visitors</b>	<b>1,400,000</b>	<b>£</b>	<b>23,881,715</b>	<b>£</b>	

Preliminary results only

— subject to change

<b>TOTAL</b>				\$5,415,206		\$102,328,981	
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# NCA in St. Helena

- Preliminary results give us an indicative value, but should not be too focused on specific numbers at this stage
- Much to work on and improve, but demonstrate what is feasible with available data and limited resource investment
- Highlight gaps, to identify what further data collection (and format) could be beneficial
- Each future iteration should improve, with data updated annually to track change over time
- Can provide preliminary evidence to lead to better environmental management, and set up a framework for future decision making

# NCA in Policy and Planning

# How can NCA be embedded in to Policy and Planning decision-making?

- Provides an evidence base to inform policy
- Monitors trends over time
- Assists long-term planning for the future
- Demonstrates the value of the environment to the people of St. Helena
- Supports sustainable economic growth and prosperity
- Use of NCA to support decision making:
  - Developing tourism industry
  - Better land management - land use trade-offs

# Next Steps



# NCA process

- NCA is a ongoing process - accounts should be updated (and improved) annually
- Aim is to build capacity to develop the NCA process on St. Helena - should be incorporated in to national accounts (national statistics)
- Practitioners need support to develop the tools to provide better evidence to policy makers - better evidence will lead to better policy and environmental management for sustainable prosperity for St. Helena

# Questions?



# Thank you



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