

Report of the Scientific and Statistical Committee

Caribbean Fishery Management Council
170th Meeting
August 11-12, 2020

SSC Ecosystem Conceptual Model



Model has 8 Submodels

Submodels have variable number of components

- Marine Ecosystem Components (12)
- Competing Use of Resources (15)
- Socio-economic and Cultural Drivers (16)
- Land-Based Uses (8)
- Fishing (10)
- Water Quality (6)
- Habitat (5)
- Abiotic Factors (9)

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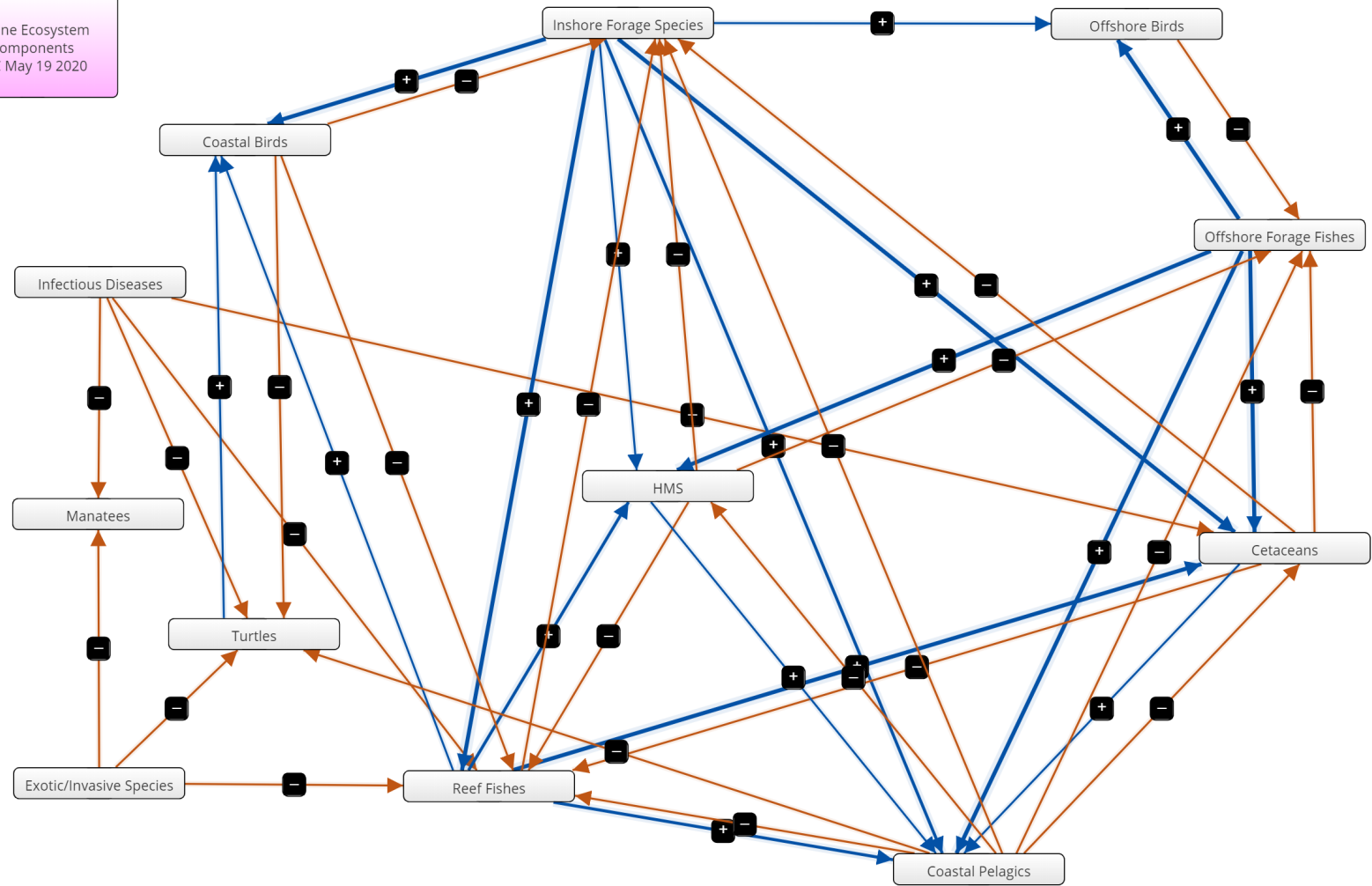
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Over 64,000 potential connections!

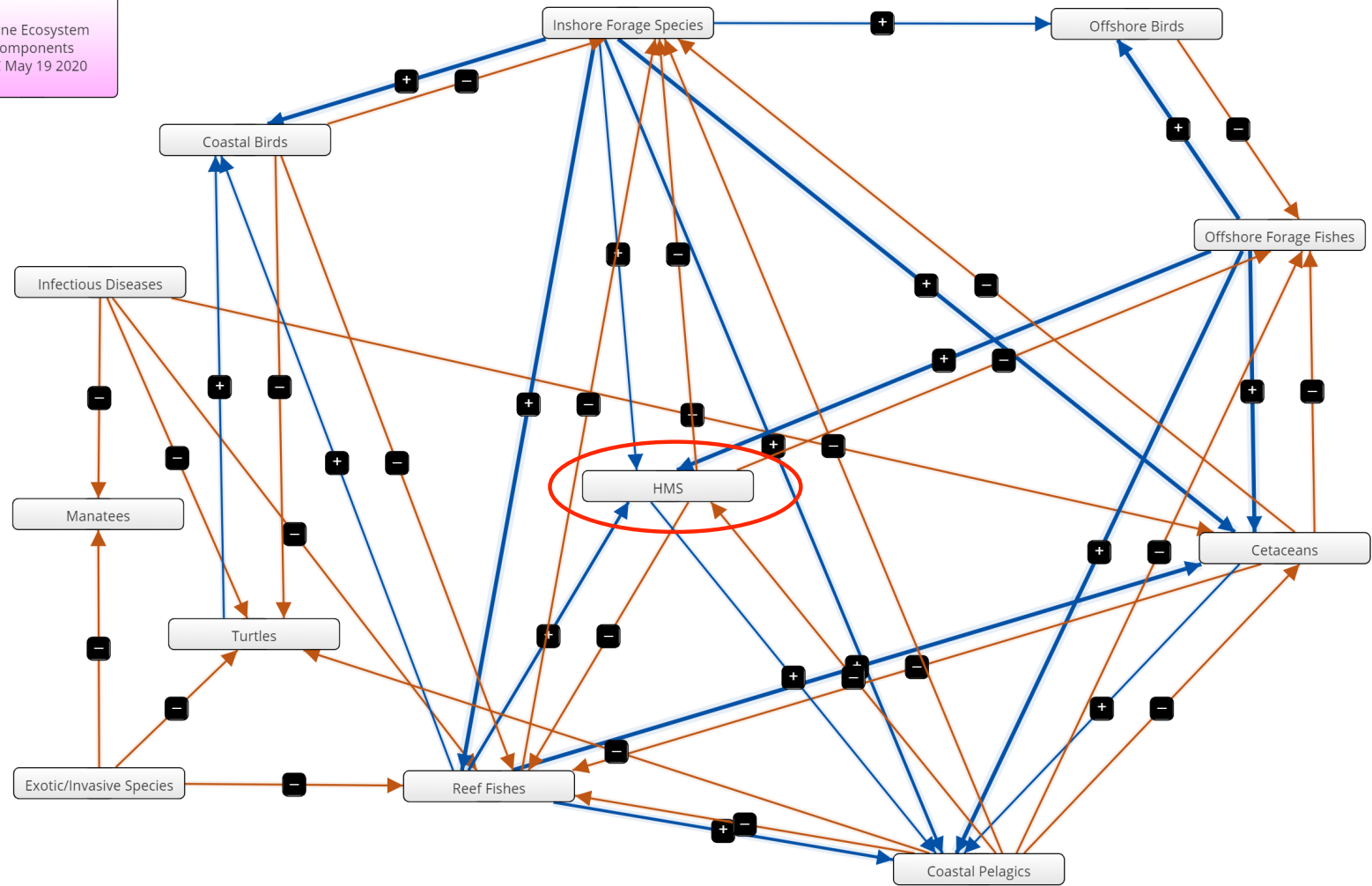
Issues Addressed

- Finish Making Component Connections within Submodels
 - Competing Use of Resources
- Revisit Submodels
- Remaining issues
 - Component definitions
 - Add/delete/move components
 - Zeros - Place holders
 - Nonlinear/Variable responses
- Connections between Submodels
 - Homework assignment

Marine Ecosystem
Components
SSC May 19 2020



Marine Ecosystem
Components
SSC May 19 2020

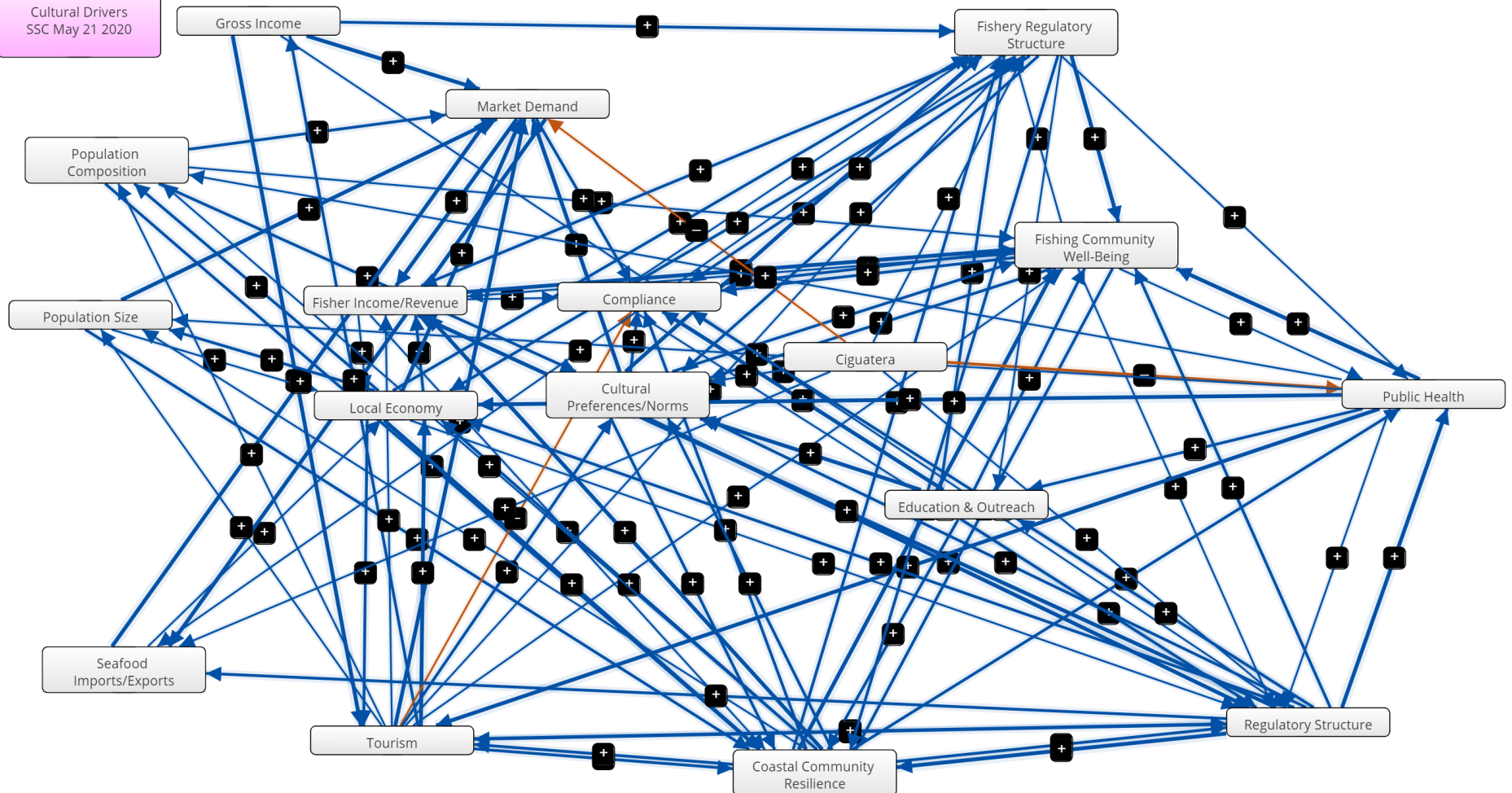


	Infectious Diseases	Exotic/Invasive Species	Manatees	Inshore Forage Turtles Species	Reef Fishes	Coastal Birds	Offshore Forage Fishes	Offshore Birds	Cetaceans	HMS	Coastal Pelagics
Infectious Diseases			-1	-1	-1				-1		
Exotic/Invasive Species			-1	-1	-1						
Manatees											
Turtles						1					
Inshore Forage Species					3	3		1	3	1	2
Reef Fishes				-1		1			3	2	2
Coastal Birds				-1	-1						
Offshore Forage Fishes								3	3	3	3
Offshore Birds							-1				
Cetaceans				-1	-1		-1				1
HMS				-1	-1		-1				1
Coastal Pelagics				-1	-1		-1		-1	-1	

Black = Original 10.30.19

Red=Edited 05.19.2020

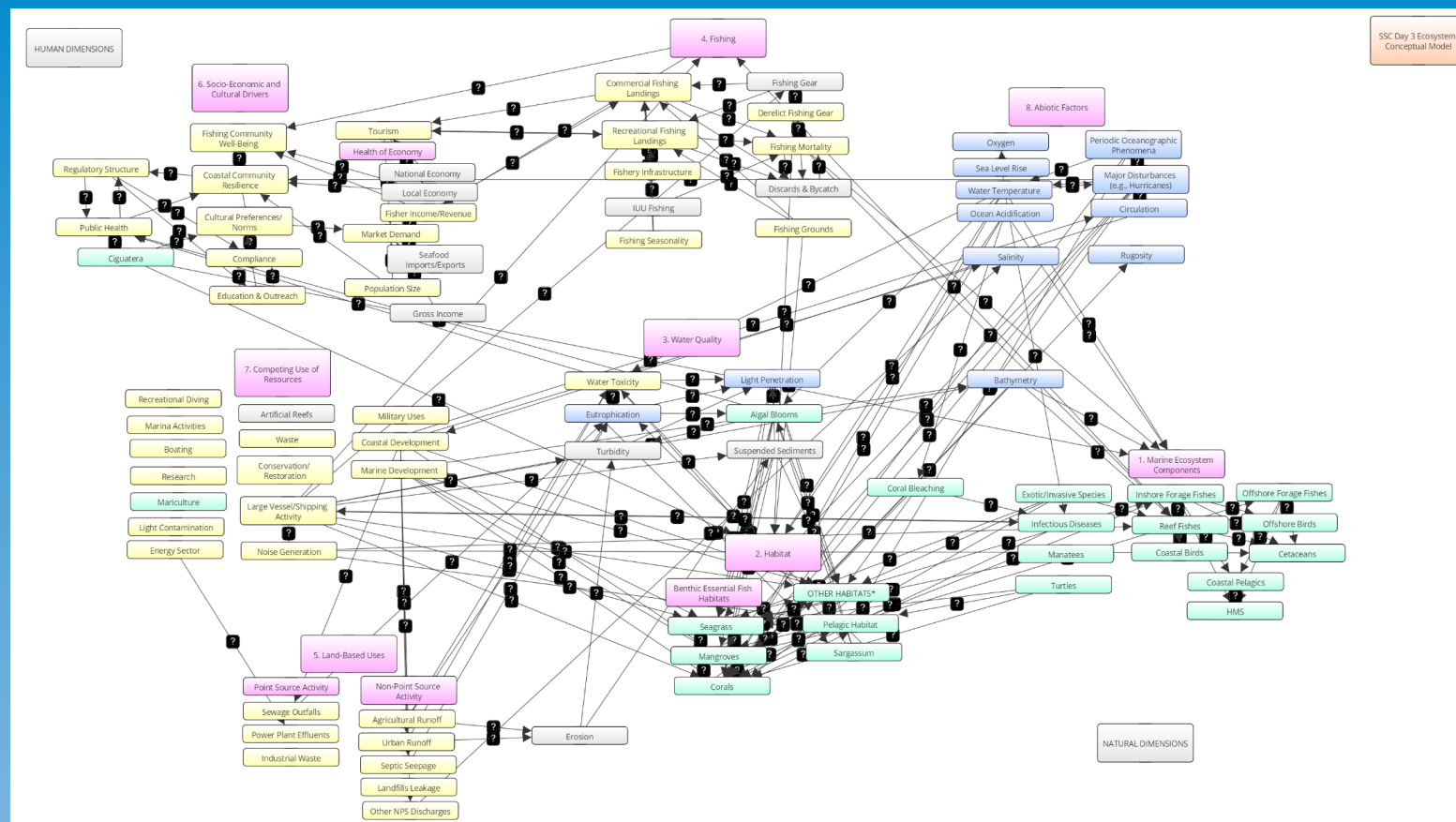
Socio Economic &
Cultural Drivers
SSC May 21 2020



Socio-economic and Cultural Drivers

	Gross Income	Population Composition	Population Size	Seafood Imports/Exports	Market Demand	Fisher Income/Revenue	Local Economy	Tourism	Education & Outreach	Compliance	Cultural Preferences/Norms	Coastal Community Resilience	Fishing Community Well-Being	Public Health	Regulatory Structure	Fishery Regulatory Structure
Gross Income					3			3							1	2
Population Composition					2						2	2	1			
Population Size					3		1					2				
Seafood Imports/Exports					3		1									
Market Demand				3		3				2						
Fisher Income/Revenue							1			1		1	3			
Local Economy		2	2		3	2		2				3			1	2
Tourism	2	1	1		3	1	3			-1	2	2	1		1	1
Education & Outreach										3	3	2	2		2	2
Compliance						1							2		1	1
Cultural Preferences/Norms					3					2		2	2		3	3
Coastal Community Resilience		1	1			3	2	2		2	2		3	2	2	2
Fishing Community Well-Being						1				2	2	2		1	1	1
Ciguatera				1	-1						1			-2	1	1
Public Health		1	1				3	3	2				3		1	
Regulatory Structure				2		3	2	2	1	2	2	3	2	3		
Fishery Regulatory Structure				1		2	2		1	2	2	2	3	1		

Full Conceptual Model (2019)



Full Conceptual Model

[illegible]

SSC Homework Assignment

Priority Connections Between Components within Each Pair of Submodels

Identify the 3 most important connections, their direction, and their strength

- A way to start and focus the SSC as it evaluates the over 64,000 potential component-to-component connections within the ECM
- Individual results will be compiled and reviewed at a future SSC meeting
- Results will be presented to the Council and its EBFM TAP as interim result
- Results should also be made available to other interested user groups
 - Caribbean Lenfest project/team
 - SEFSC's Ecosystem Status Report

Future SSC Assignment

[illegible]

Example: The three most important component connections from the *Socio-Economic and Cultural Drivers (S-E-C)* submodel affecting the *Fishing* submodel could be:

- Seafood Imports/Exports affecting Commercial Fishing Catch
- Market Demand affecting Commercial Fishing Catch
- Tourism affecting Recreational Fishing Catch

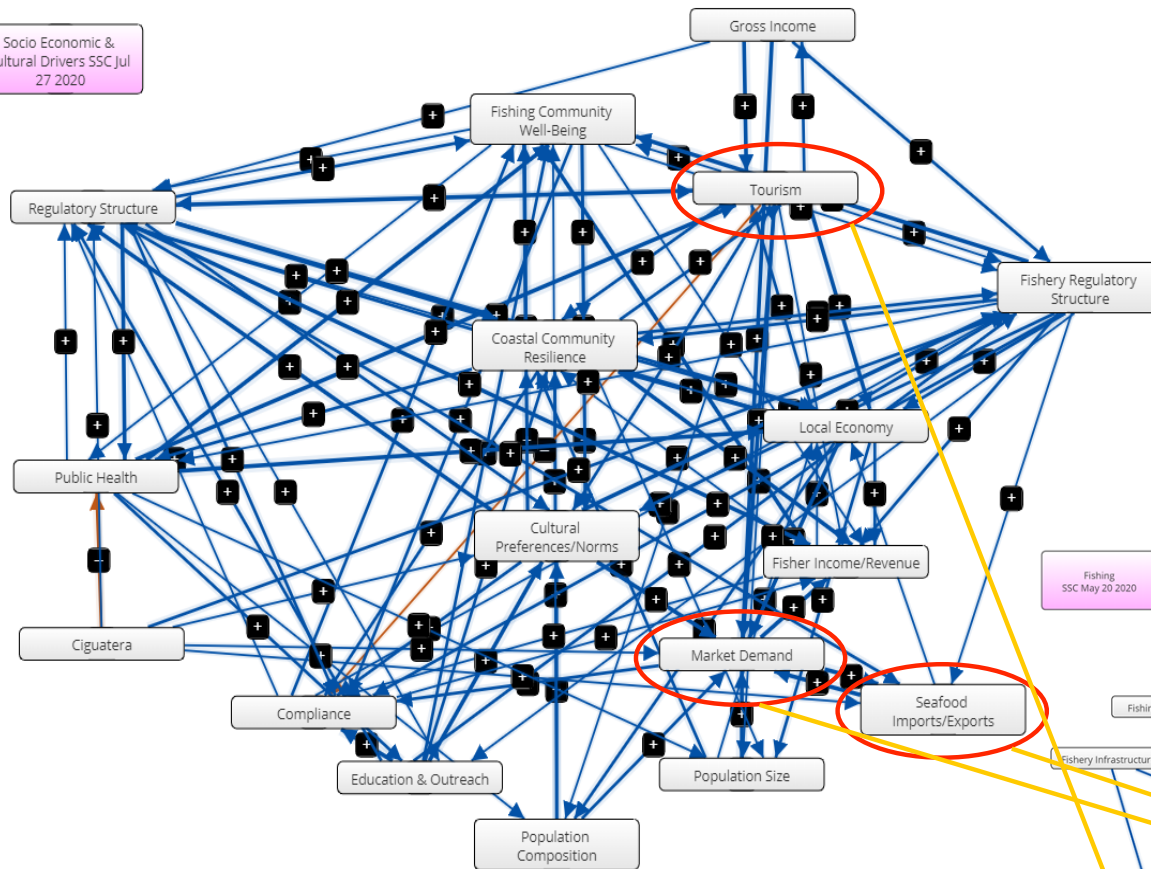
In this case, two of the driver components affect the same target component.

S-E-C Submodel Components

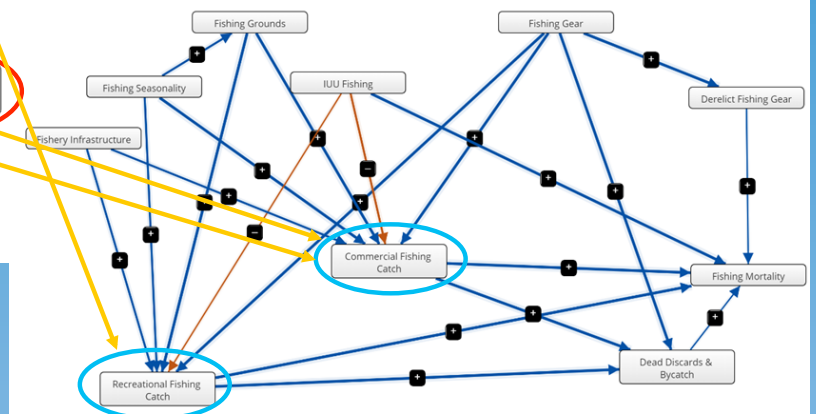
Fishing Submodel Components

Gross Income	Fishing Gear
Population Composition	Derelict Fishing Gear
Population Size	Fishing Mortality
Seafood Imports/Exports	Dead Discards & Bycatch
Market Demand	Fishing Grounds
Fisher Income/Revenue	Fishing Seasonality
Local Economy	IUU Fishing
Tourism	Fishery Infrastructure
Education & Outreach	Recreational Fishing Catch
Compliance	Commercial Fishing Catch
Cultural Preferences/Norms	
Coastal Community Resilience	
Fishing Community Well-Being	
Ciguatera	
Public Health	
Regulatory Structure	
Fishery Regulatory Structure	

Socio Economic & Cultural Drivers SSC Jul 27 2020



Fishing
SSC May 20 2020



	Fishing (response submodel)			
	Driver Component	Response Component	Direction (+/-)	Strength (L/M/H)
S-E-C (driver submodel)	Seafood Imports/ Exports	Commercial Fishing Catch	0	M
	Market Demand	Commercial Fishing Catch	+	H
	Tourism	Recreational Fishing Catch	+	H

