Figure S1. Photograph of ARs construction made of thinning timbers

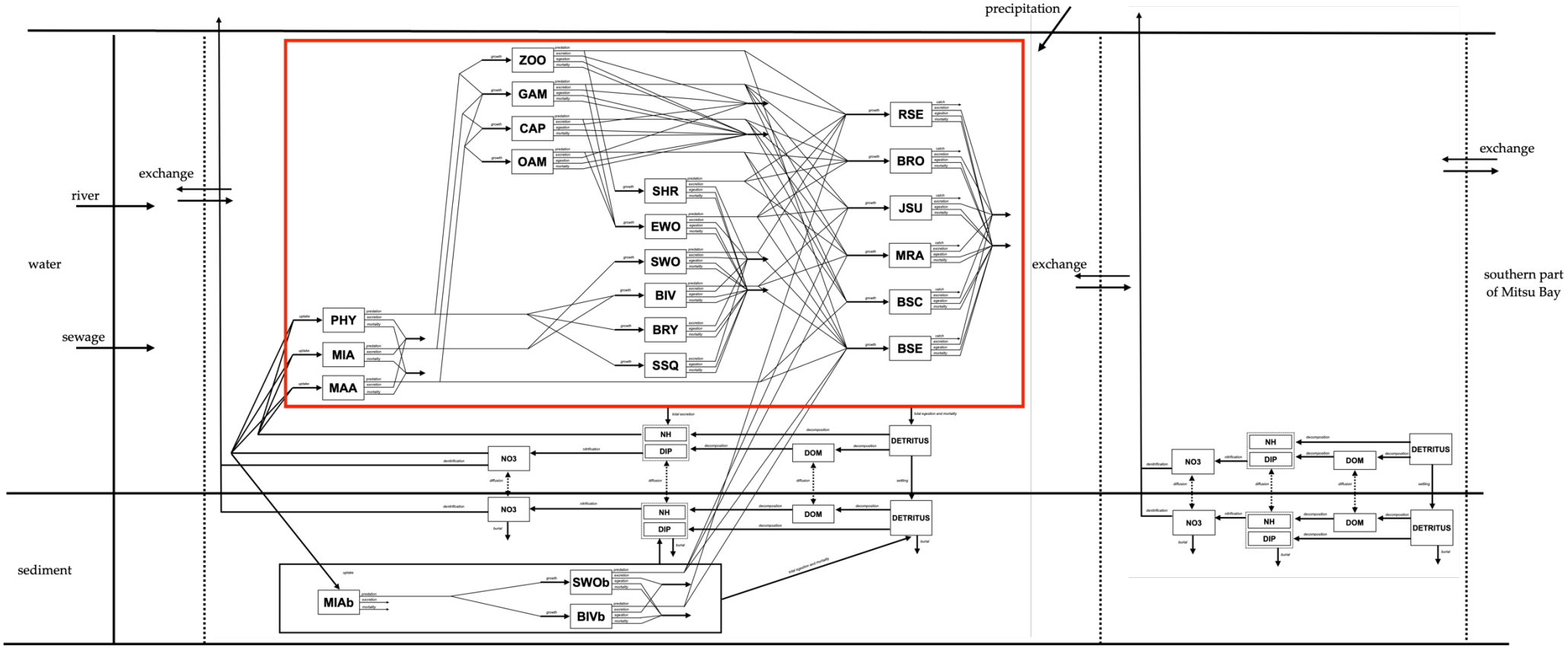

Figure S2. Illustration of food webs in ATRs system (red square) and P and N cycles in the ATR area. Subscripts and abbreviations: micro algae (MIA), macro algae (MAA), benthic micro algae (MIAb), zooplankton (ZOO), shrimp (SHR), bivalves (BIV), benthic bivalves (BIVb), sedentary worm (SWO), benthic sedentary wom (SWOb), errant worm (EWO), bryozoan (BRY), sea squirt (SSQ), gammarid (GAM), caprellid (CAP), other amphipods (OAM), black seabream *Acanthopagrus schlegelii* (BSE), black rockfish *Sebastes inermis* (BRO), Japanese surfperch *Ditrema temmincki* (JSU), Multicolorfin rainbowfish *Parajulis poecilopterus* (MRA), Black scraper *Thamnaconus modestus* (BSC) and Red seabream *Pagrus major* (RSE), grazing (graz), nutrient uptake (uptake), total feed on prey biomass (feed), natural mortality (mortal), excretion (exc), egestion (fae), biomass eaten by others predation (eat), fishermen catch (catch).

Table S1. Standard setting for model runs

			Remarks
Initial conditions	DIP	5 mg P m^{-3}	[1]
	DOP	10 mg P m^{-3}	[1]
	DET-P	8 mg P m^{-3}	[1]
	Nitrate	20 mg N m^{-3}	[1]
	Ammonia	10 mg N m^{-3}	[1]
	DON	100 mg N m^{-3}	[1]
	DET-N	20 mg N m^{-3}	[1]
	Phytoplankton	5 mg P m^{-3}	[2]
	Attached algae	0.01 mg P m^{-3}	assumed to be low before ATRs deployment
	Attached organism	0.01 mg P m^{-3}	assumed to be zero before ATRs deployment
	Benthic organisms	20 mg P m^{-3}	initial biomass observation
	Fish	40 mg P m^{-3}	initial biomass observation
Loads	Rain DIP	0.003 mg P m^{-3} day^{-1}	[3]
	Rain nitrate	0.06 mg N m^{-3} day^{-1}	[3]
	Rain ammonia	0.11 mg N m^{-3} day^{-1}	[3]
	River DIP	0.002 mg P m^{-3} day^{-1}	[4]
	River DOP	0.001 mg P m^{-3} day^{-1}	[4]
	River DET-P	0.001 mg P m^{-3} day^{-1}	[4]
	River nitrate	0.029 mg N m^{-3} day^{-1}	[4]
	River Ammonia	0.02 mg N m^{-3} day^{-1}	[4]
	River DON	0.01 mg N m^{-3} day^{-1}	[4]
	River DET-N	0.01 mg N m^{-3} day^{-1}	[4]
	Sewage DIP	0.002 mg P m^{-3} day^{-1}	[4]
	Sewage DOP	0.001 mg P m^{-3} day^{-1}	[4]
	Sewage DET-P	0.001 mg P m^{-3} day^{-1}	[4]
	Sewage nitrate	0.007 mg N m^{-3} day^{-1}	[4]
	Sewage ammonia	0.005 mg N m^{-3} day^{-1}	[4]
	Sewage DON	0.002 mg N m^{-3} day^{-1}	[4]
	Sewage DET-N	0.002 mg N m^{-3} day^{-1}	[4]

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