

# BEYOND SINGLE SPECIES RESTORATION: CO-RESTORING KELP FORESTS WITH OYSTER REEFS

LACHLAN MCLEOD  
DOMINIC MCAFEE & SEAN CONNELL



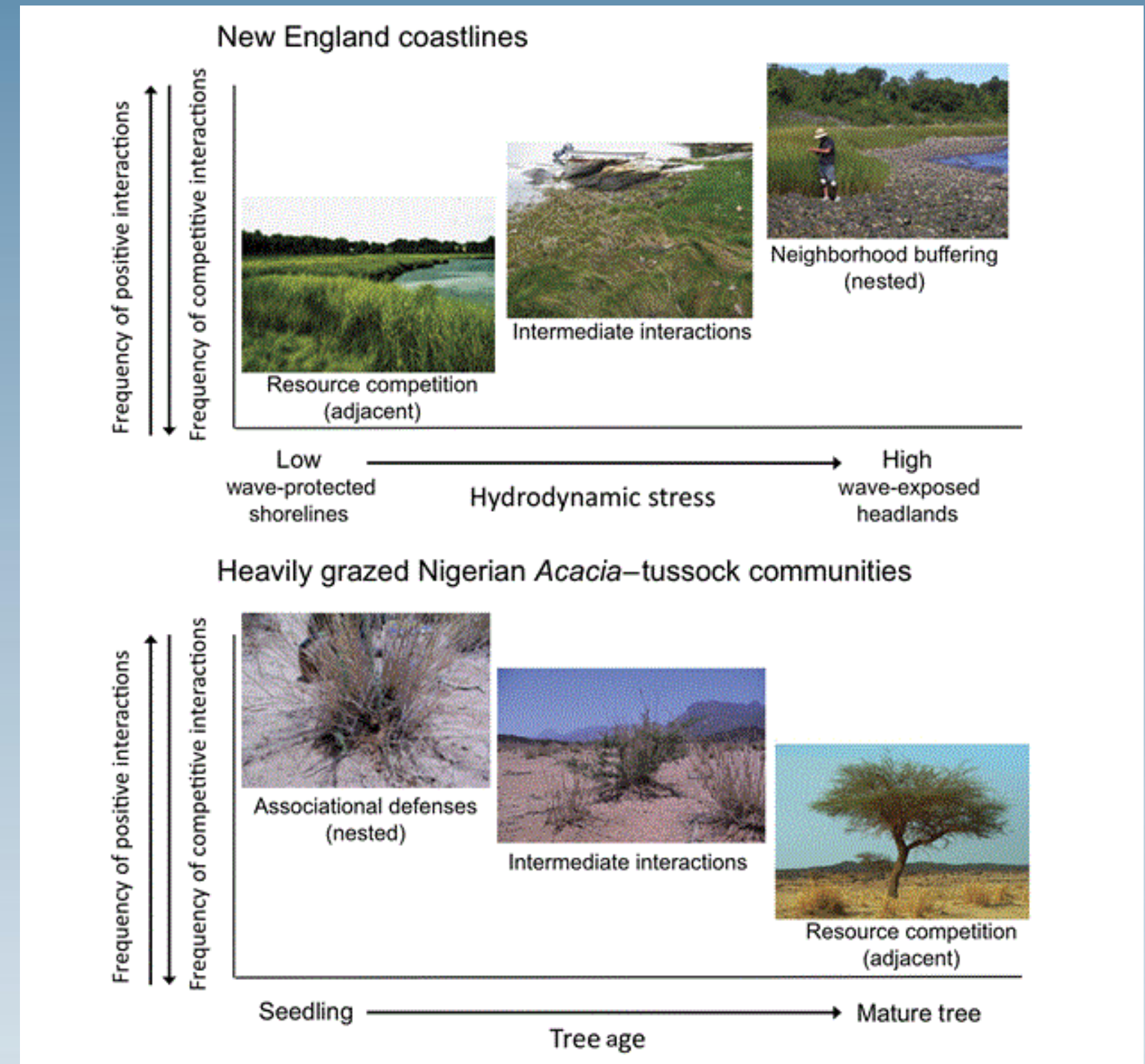
# FACILITATION & FUNCTION

## BioScience

### Interactions among Foundation Species and Their Consequences for Community Organization, Biodiversity, and Conservation FREE

Christine Angelini, Andrew H. Altieri, Brian R. Silliman, Mark D. Bertness [Author Notes](#)

*BioScience*, Volume 61, Issue 10, October 2011, Pages 782–789,



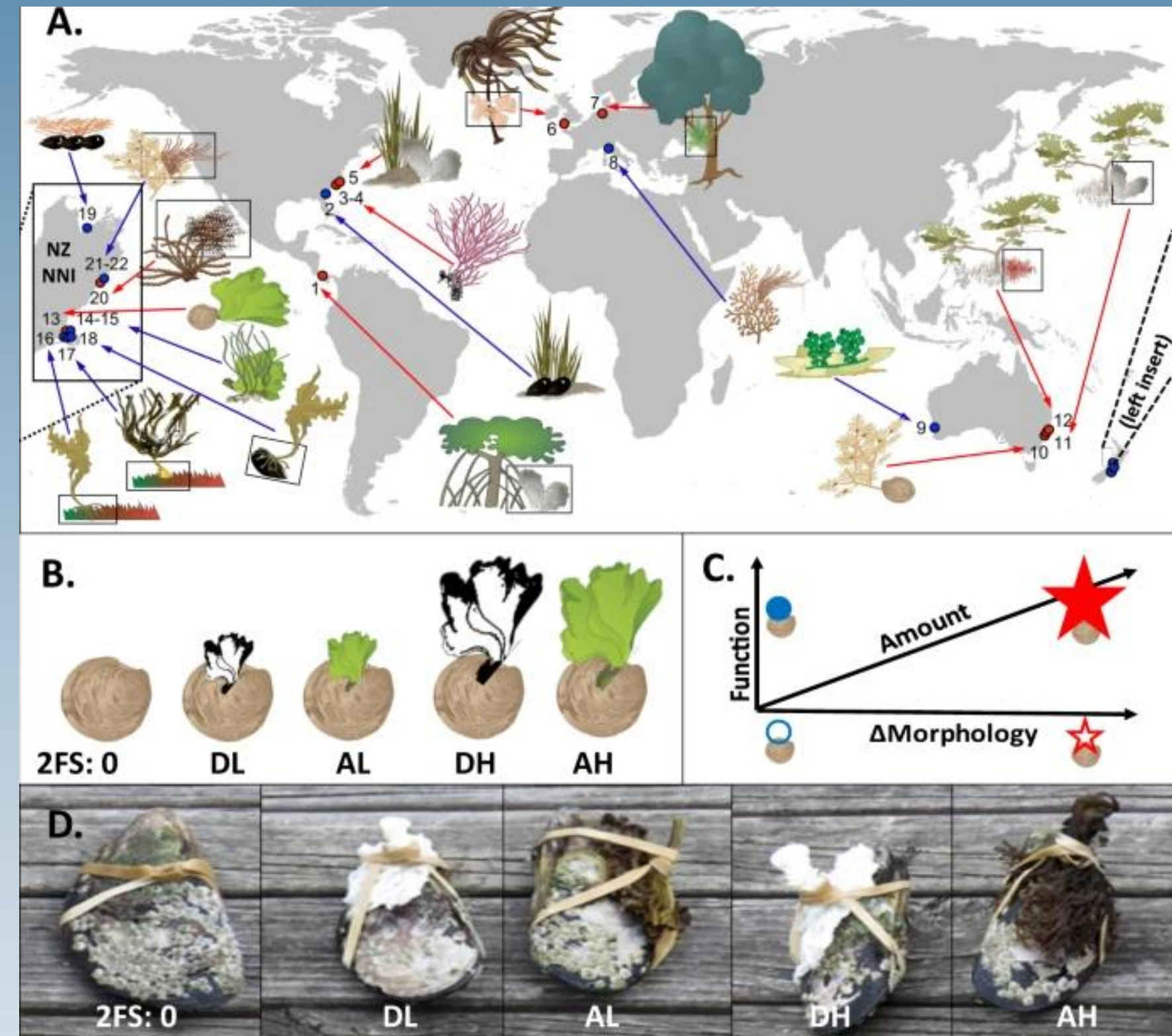


# FACILITATION & FUNCTION



## Heterogeneity within and among co-occurring foundation species increases biodiversity

Mads S. Thomsen<sup>1,2</sup>, Andrew H. Altieri<sup>3,4</sup>, Christine Angelini<sup>4</sup>, Melanie J. Bishop<sup>5</sup>, Fabio Bulleri<sup>6</sup>, Roxanne Farhan<sup>7</sup>, Viktoria M. M. Frühling<sup>3</sup>, Paul E. Gribben<sup>8,9</sup>, Seamus B. Harrison<sup>3</sup>, Qiang He<sup>10</sup>, Moritz Klinghardt<sup>11</sup>, Joachim Langeneck<sup>6</sup>, Brendan S. Lanham<sup>8,9</sup>, Luca Mondardini<sup>1</sup>, Yannick Mulders<sup>12</sup>, Semonn Oleksyn<sup>5</sup>, Aaron P. Ramus<sup>13</sup>, David R. Schiel<sup>1</sup>, Tristan Schneider<sup>11</sup>, Alfonso Siciliano<sup>1</sup>, Brian R. Silliman<sup>14</sup>, Dan A. Smale<sup>15</sup>, Paul M. South<sup>16</sup>, Thomas Wernberg<sup>12</sup>, Stacy Zhang<sup>14</sup> & Gerhard Zotz<sup>3,11</sup>





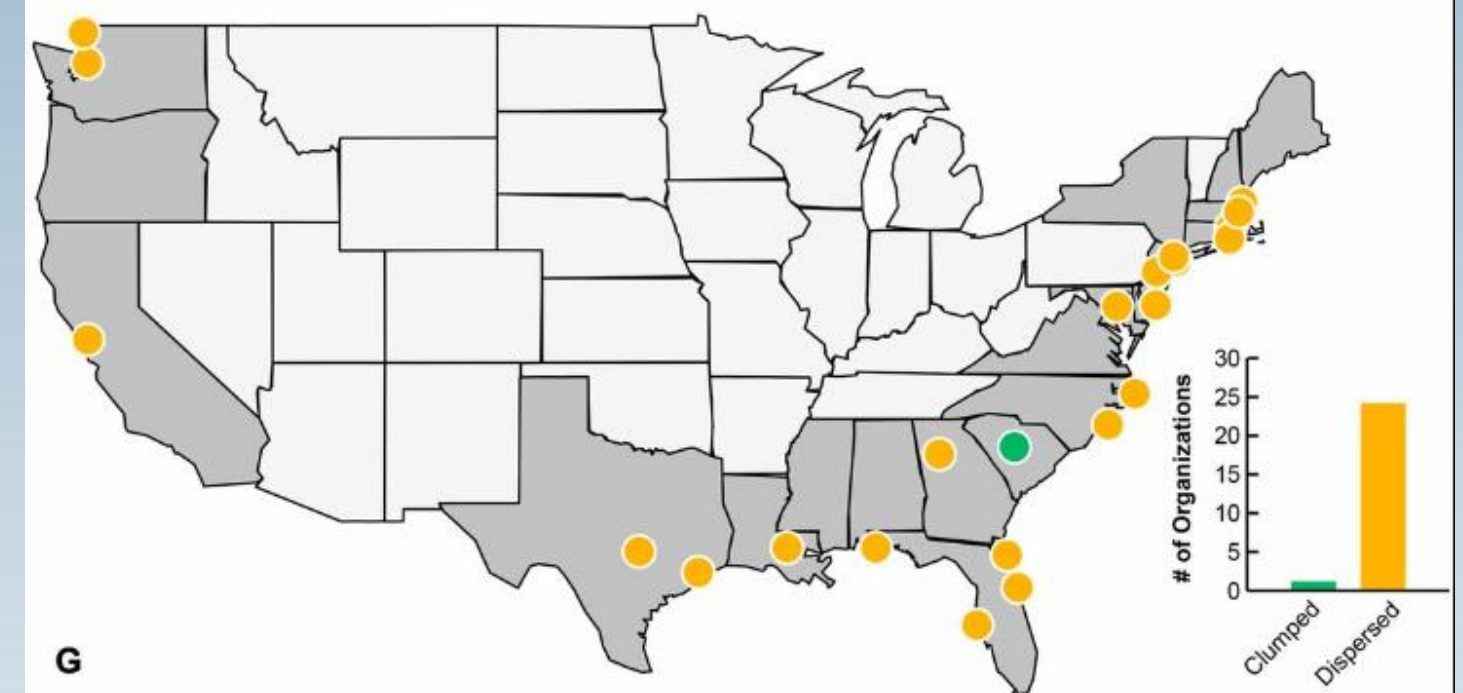
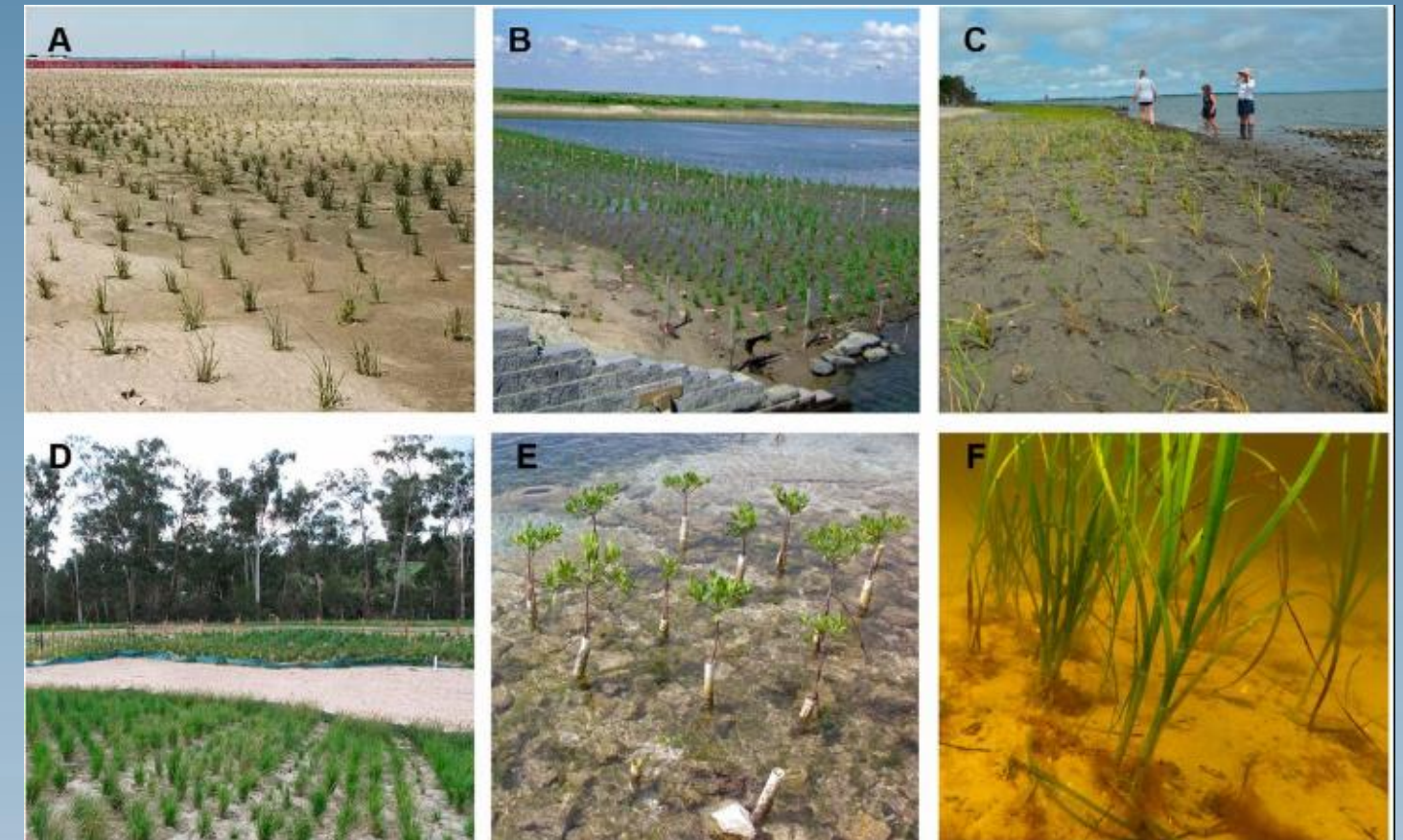
# FACILITATION FOR RESTORATION

## Facilitation shifts paradigms and can amplify coastal restoration efforts

Brian R. Silliman<sup>a,1</sup>, Elizabeth Schrack<sup>a</sup>, Qiang He<sup>a</sup>, Rebecca Cope<sup>a</sup>, Amanda Santoni<sup>a</sup>, Tjisse van der Heide<sup>b,c</sup>, Ralph Jacobi<sup>d</sup>, Mike Jacobi<sup>d</sup>, and Johan van de Koppel<sup>c,e</sup>

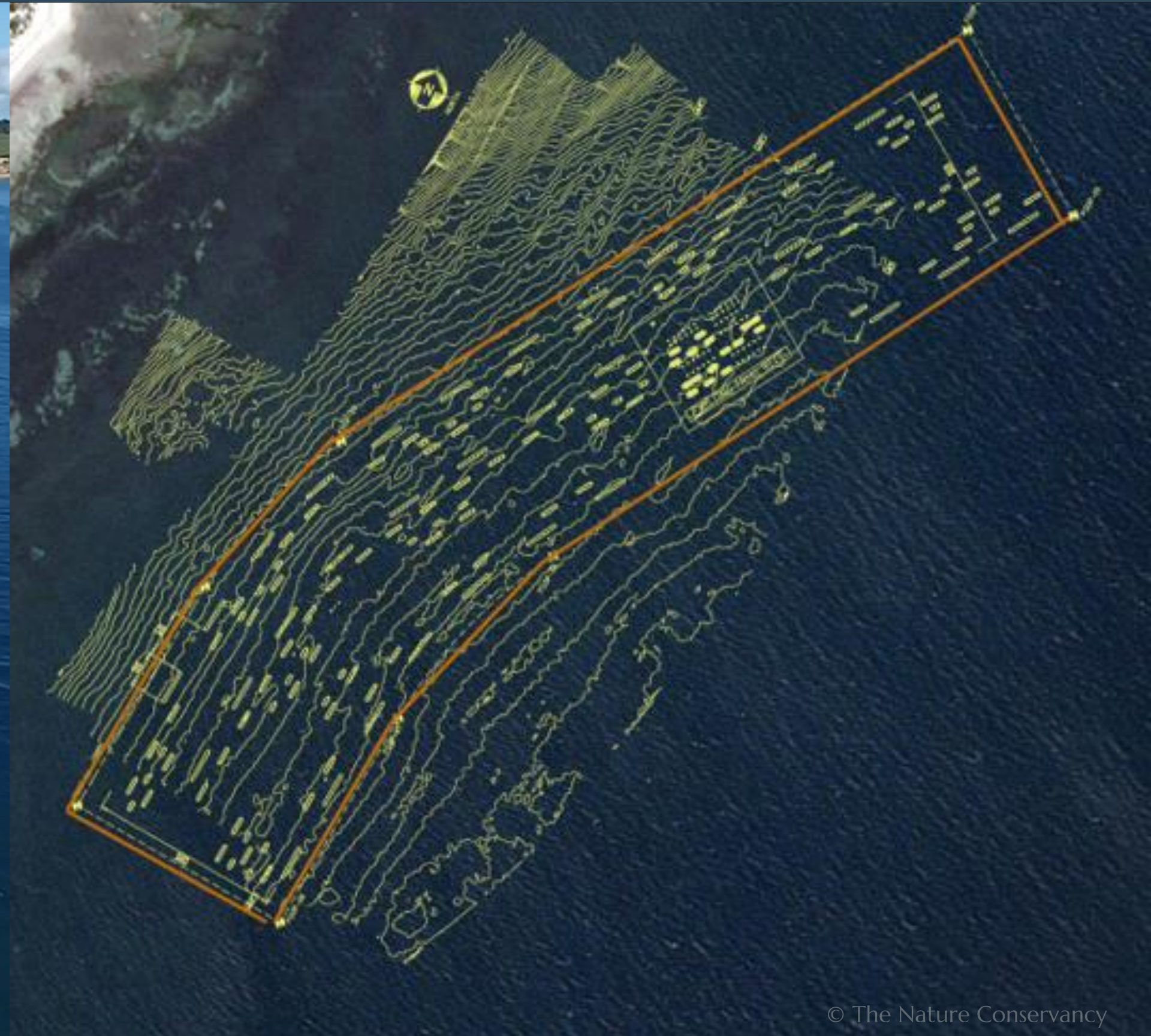
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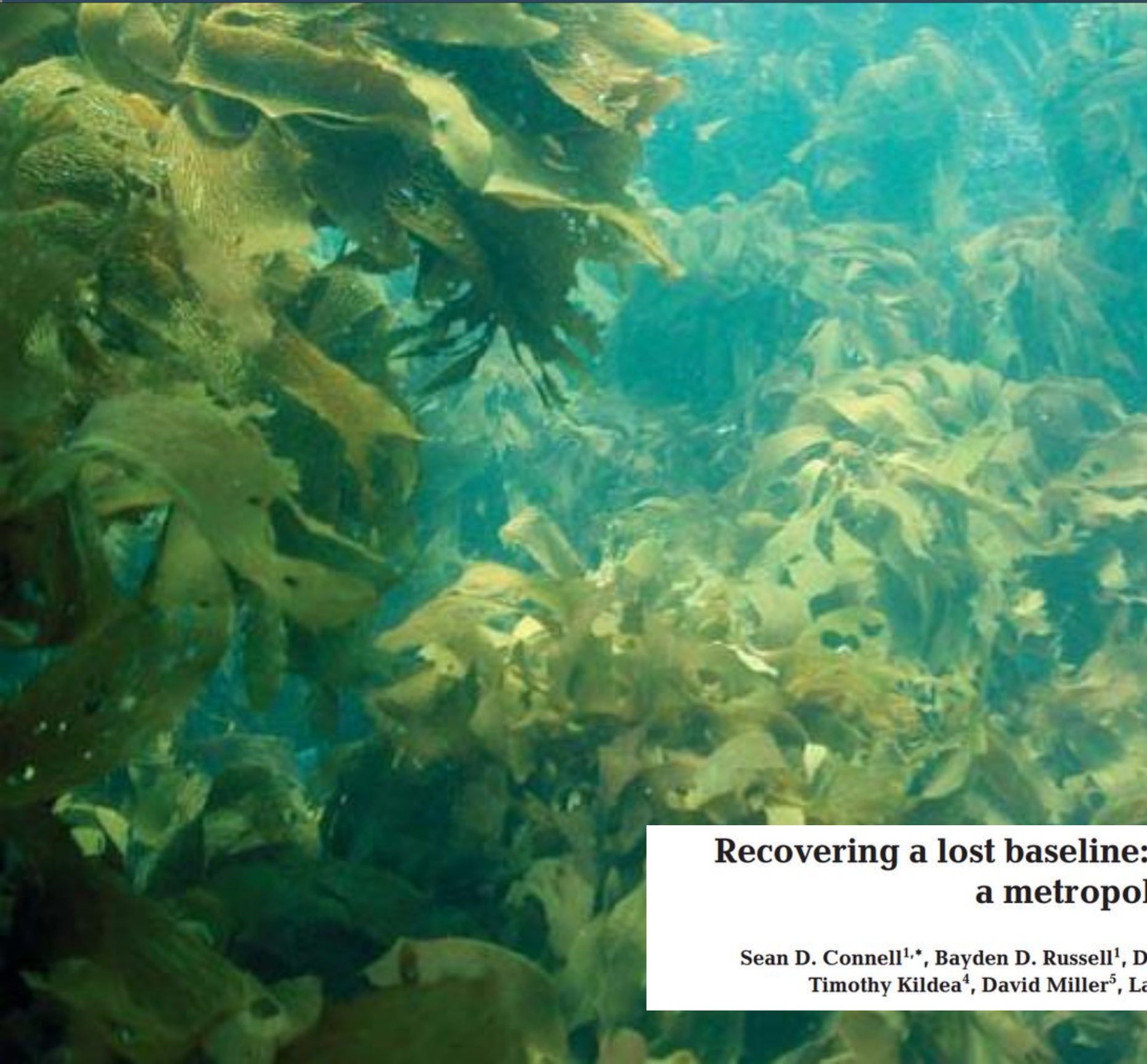


# RECOVERING AN ECOLOGICAL BASELINE





# RECOVERING AN ECOLOGICAL BASELINE



## **Recovering a lost baseline: missing kelp forests from a metropolitan coast**

Sean D. Connell<sup>1,\*</sup>, Bayden D. Russell<sup>1</sup>, David J. Turner<sup>2</sup>, Scoresby A. Shepherd<sup>3</sup>,  
Timothy Kildea<sup>4</sup>, David Miller<sup>5</sup>, Laura Airoidi<sup>6</sup>, Anthony Cheshire<sup>7</sup>



# EARLY SUCCESSION





# TURF ALGAE

TOPSIDE



UNDERSIDE





# HYPOTHESES

TRANSPLANTED KELP WILL SUPPRESS TURF ALGAE

TRANSPLANTED KELP WILL FACILITATE OYSTER RECRUITMENT



# MULTI-SPECIES RESEARCH

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RESEARCH ARTICLE

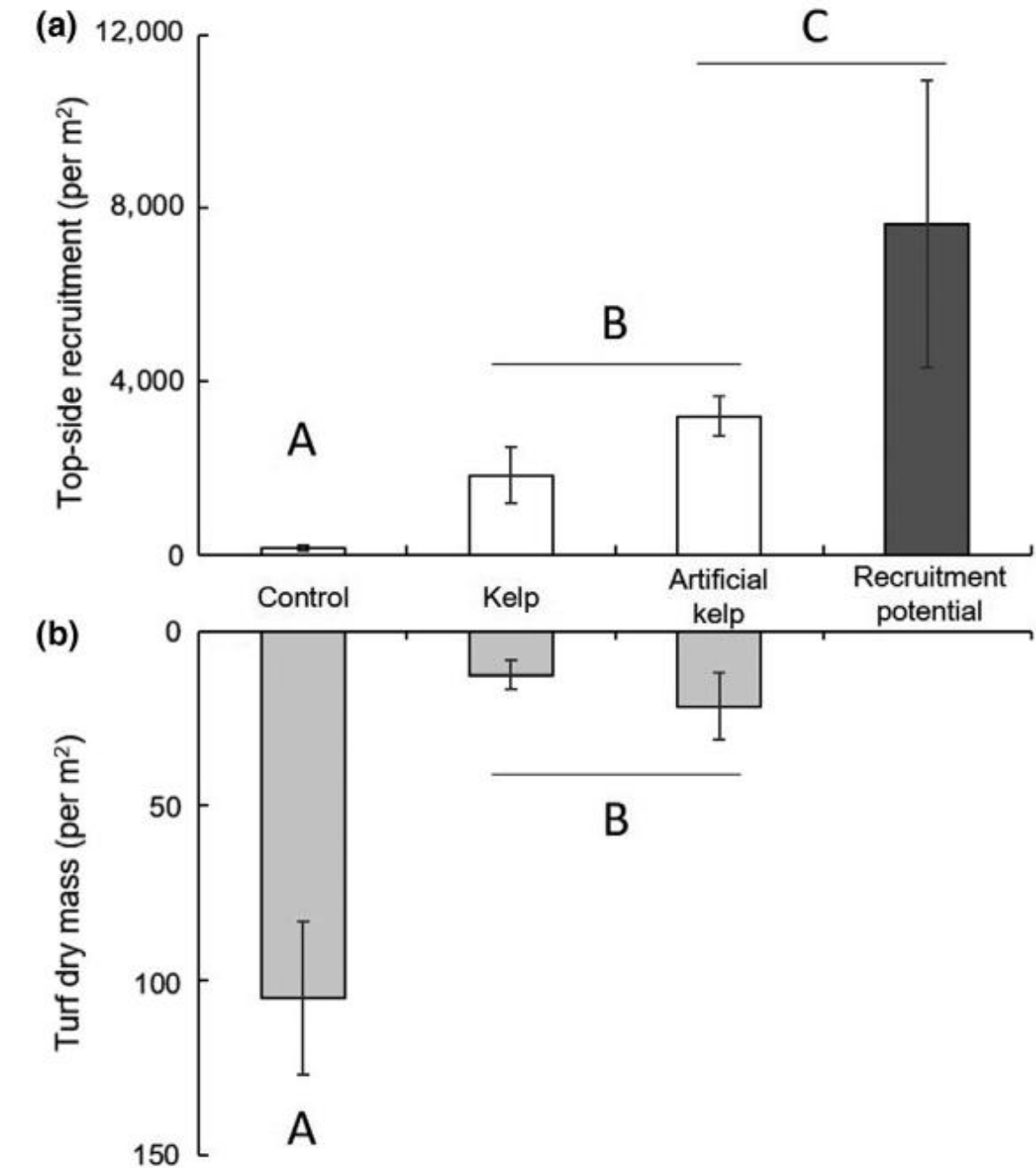
Journal of Applied Ecology 

## Multi-species restoration accelerates recovery of extinguished oyster reefs

Dominic McAfee<sup>1,2</sup>  | Catherine Larkin<sup>1</sup> | Sean D. Connell<sup>1,2</sup> 

KELP REDUCED TURF AND FACILITATED OYSTER RECRUITMENT

SMALL EXPERIMENTAL SCALE





# KELP FACILITATES OYSTERS


RESTORATION  
ECOLOGY

The Journal of the Society for Ecological Restoration



RESEARCH ARTICLE

## **Ecosystem engineering by a canopy-forming kelp facilitates the recruitment of native oysters**

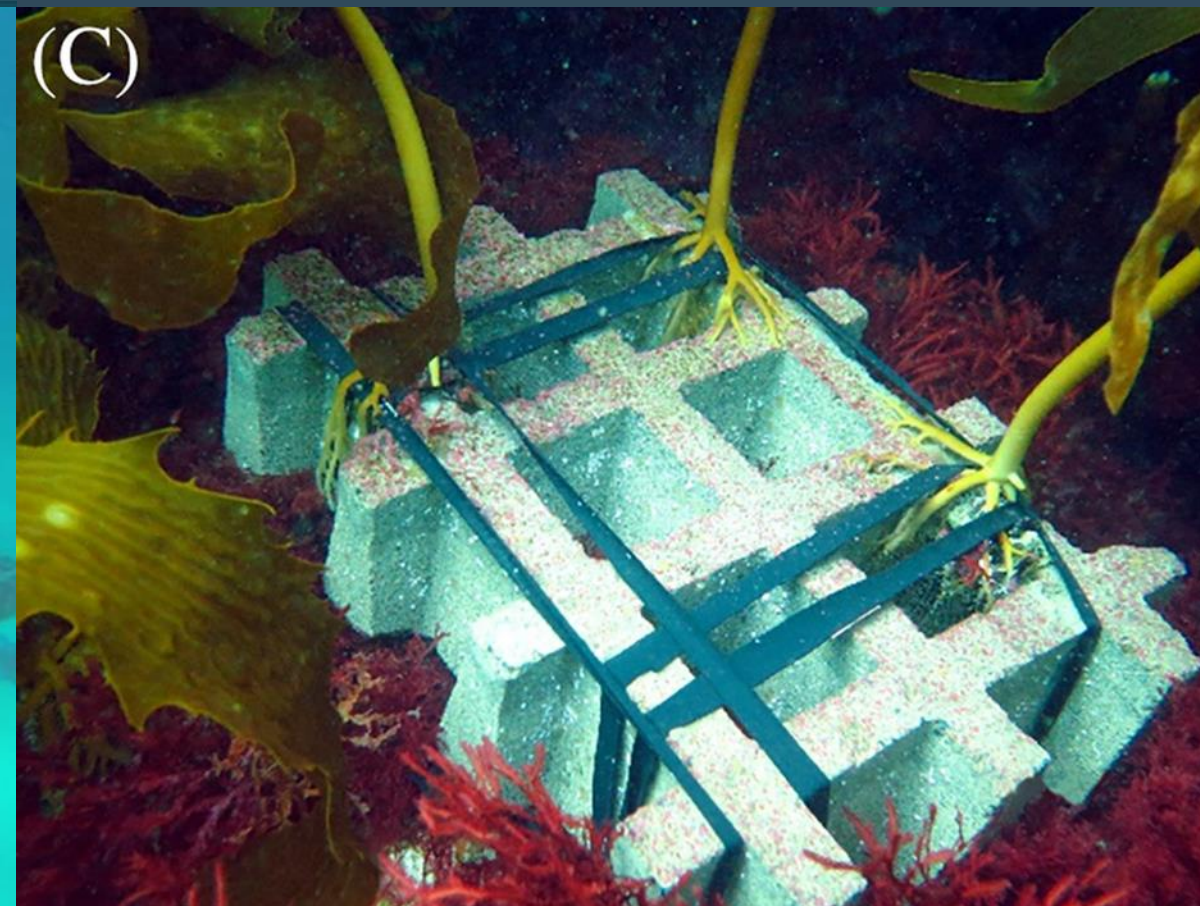
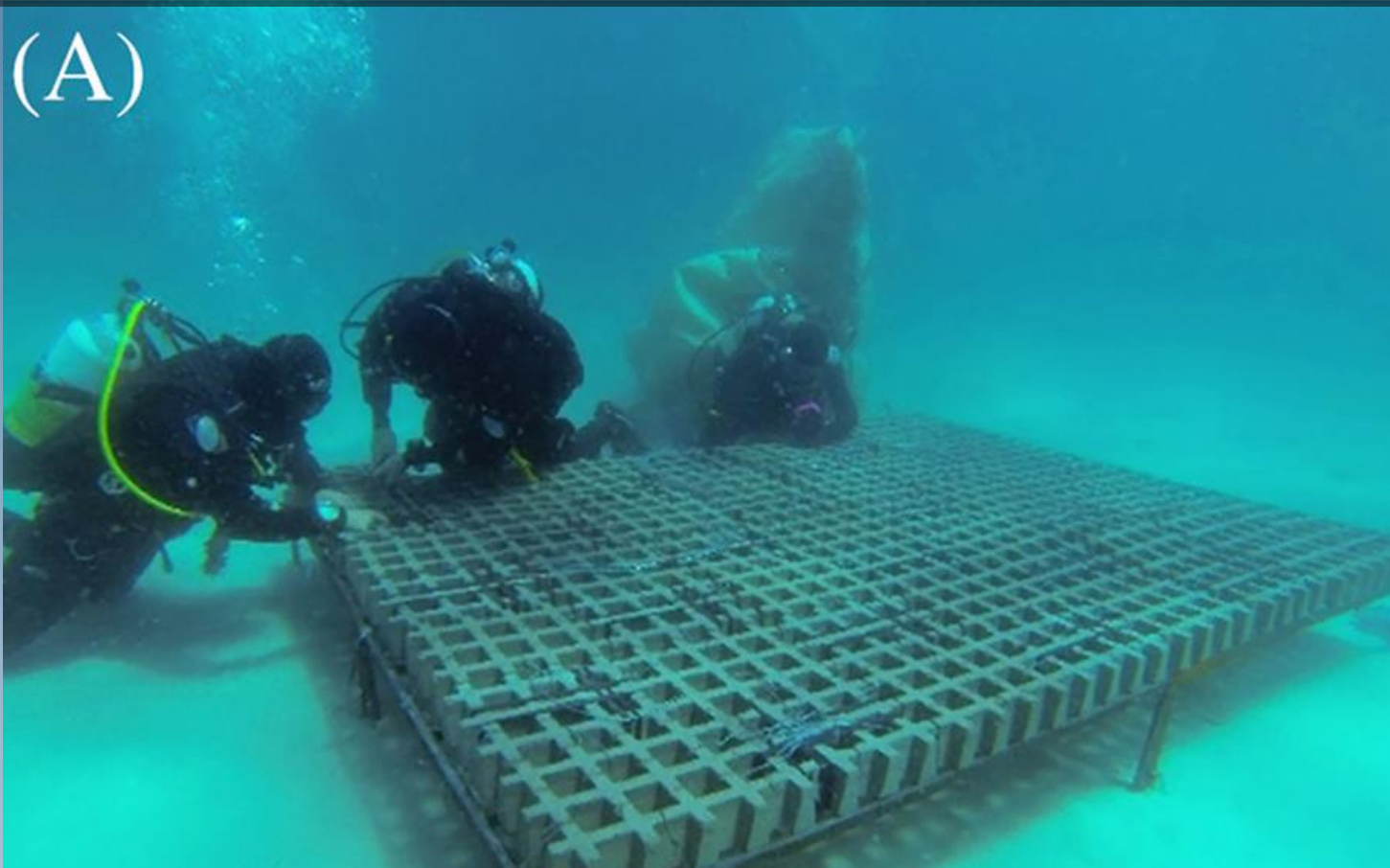
Victor Shelamoff<sup>1,2</sup> , Cayne Layton<sup>1</sup>, Masayuki Tatsumi<sup>1</sup>, Matthew J. Cameron<sup>1</sup>, Jeffrey T. Wright<sup>1</sup>, Craig R. Johnson<sup>1</sup>





# THE TRANSPLANT METHOD

DEVELOPED IN TASMANIA



RESTORATION  
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SER  
SOCIETY FOR  
ECOLOGICAL  
RESTORATION

UN DECADE ON ECOSYSTEM RESTORATION

UNITED NATIONS DECADE ON  
ECOSYSTEM  
RESTORATION  
2021-2030

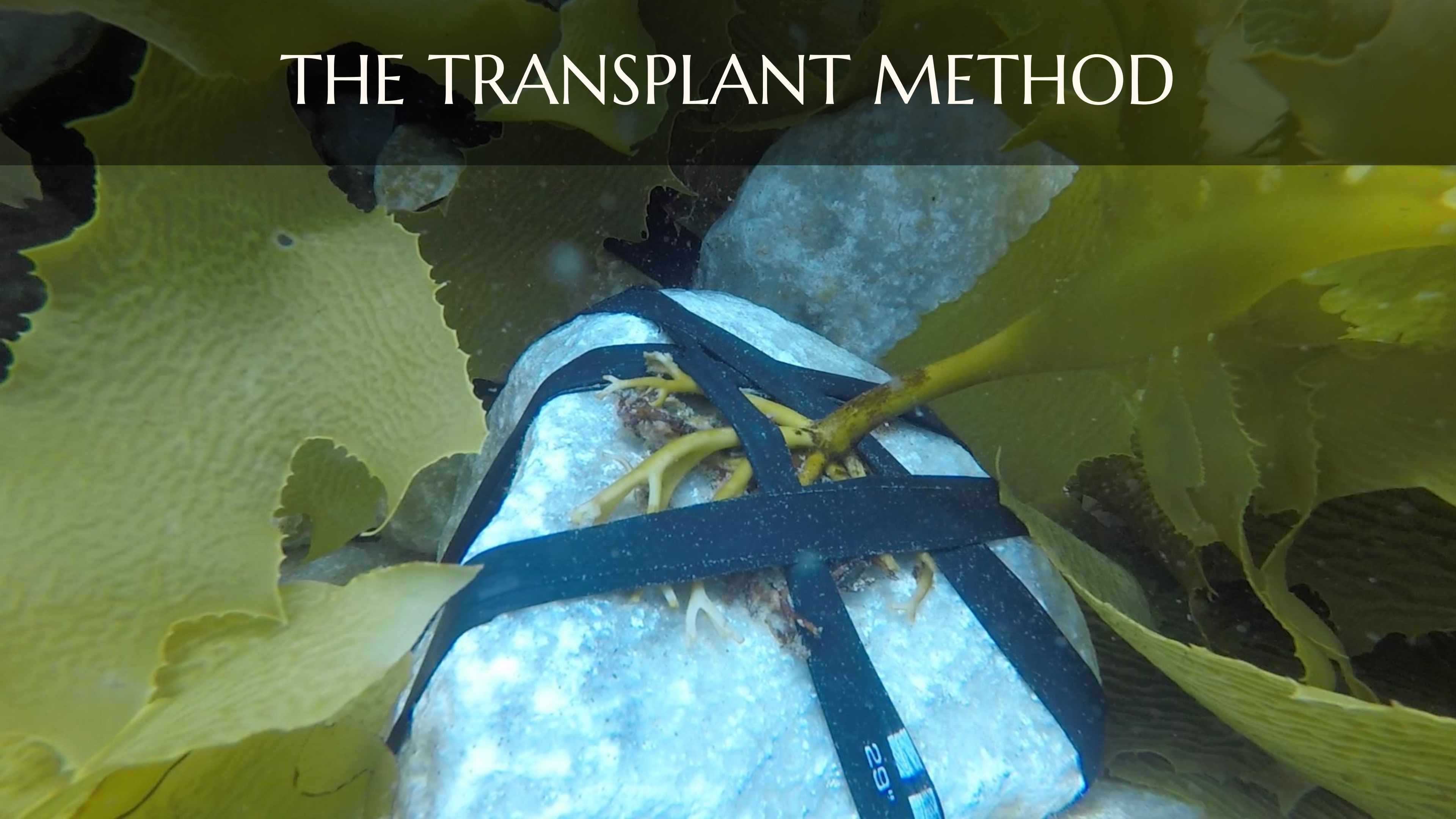
PRACTICAL ARTICLE

## A successful method of transplanting adult *Ecklonia radiata* kelp, and relevance to other habitat-forming macroalgae

Cayne Layton<sup>1,2</sup> , Matthew J. Cameron<sup>1</sup>, Victor Shelamoff<sup>1</sup> , Masayuki Tatsumi<sup>1</sup>,  
Jeffrey T. Wright<sup>1</sup>, Craig R. Johnson<sup>1</sup>



# THE TRANSPLANT METHOD





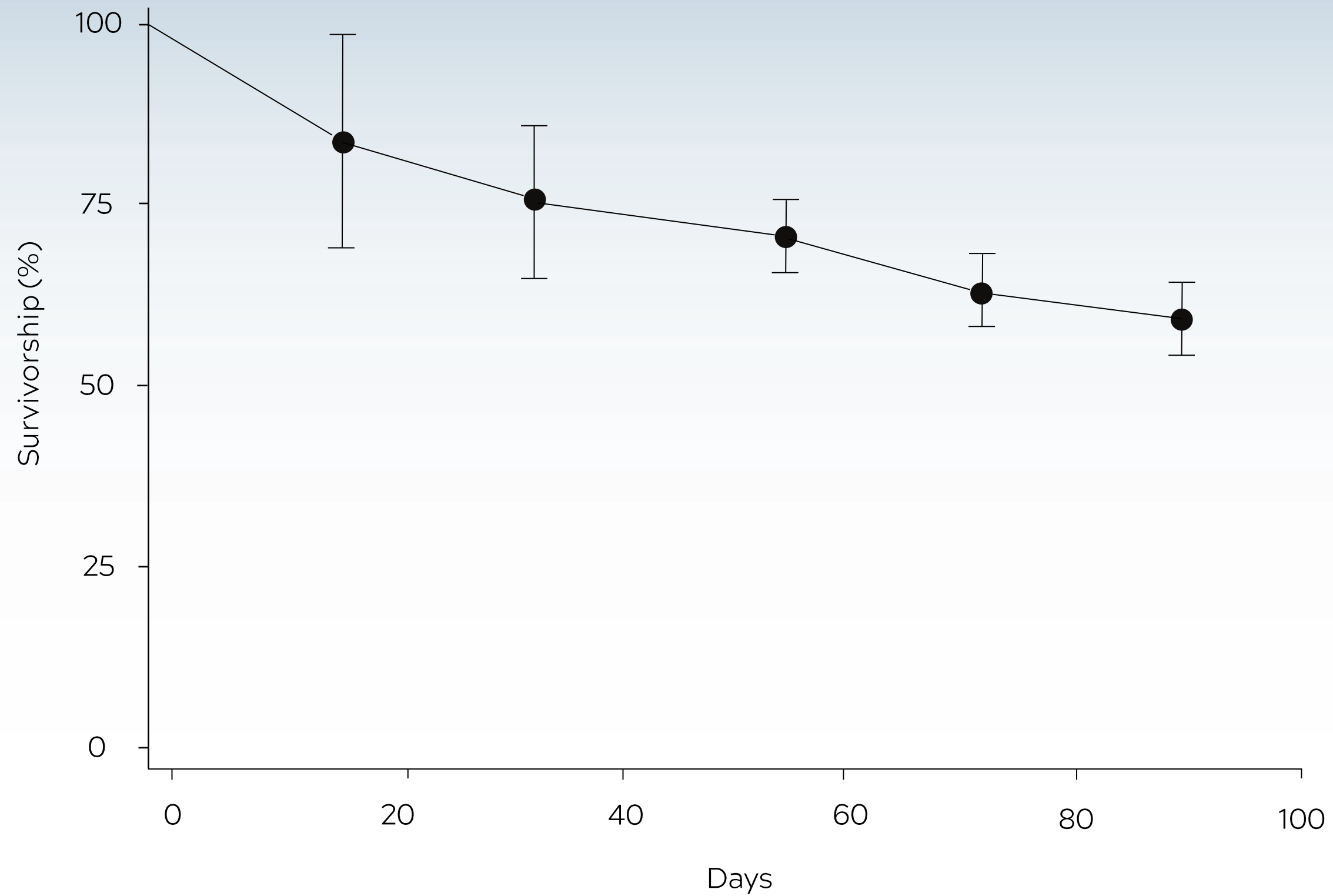
# THE TRANSPLANT METHOD





# PRELIMINARY RESULTS

## KELP SURVIVAL





# PRELIMINARY RESULTS

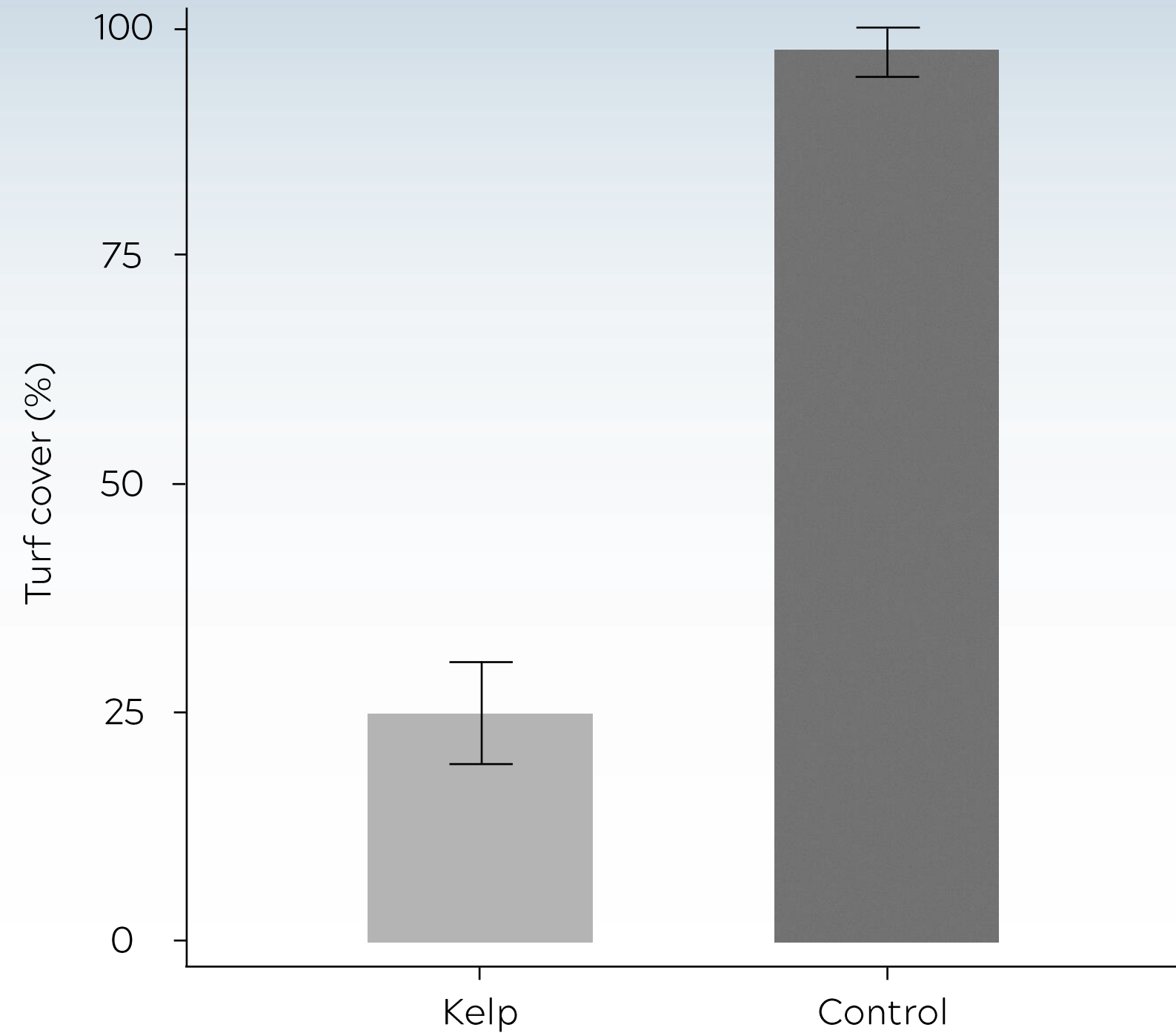
## KELP SURVIVAL





# PRELIMINARY RESULTS

## TURF SUPPRESSION





# PRELIMINARY RESULTS

## TURF SUPPRESSION





# PRELIMINARY RESULTS

## OYSTER RECRUITMENT

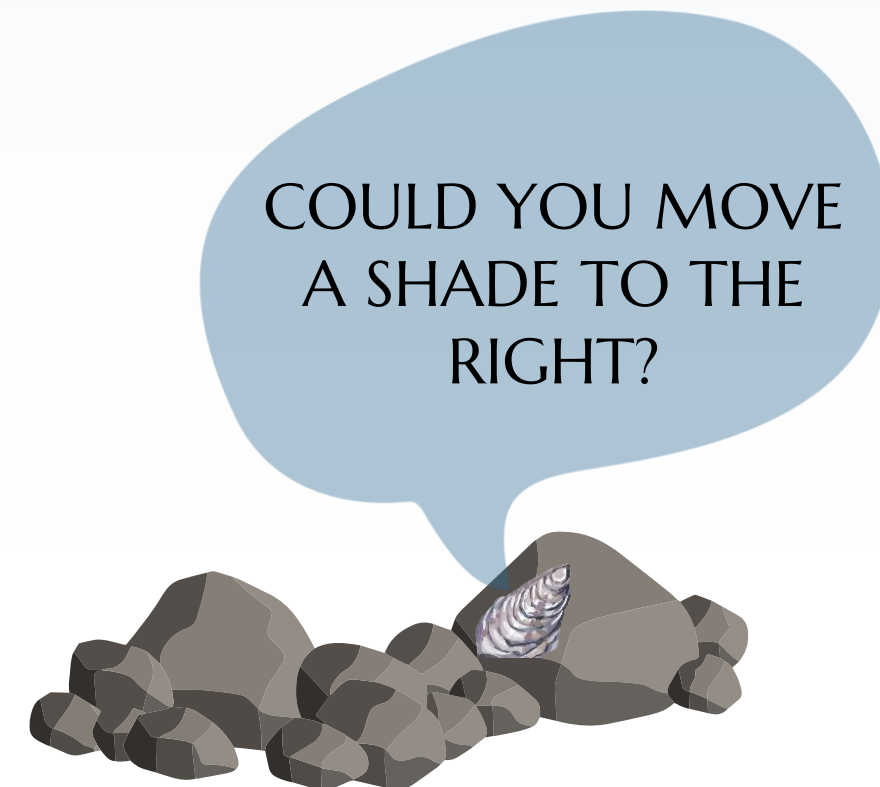




# OUTCOMES

TRANSPLANTED KELP CAN FACILITATE OYSTER RECRUITMENT  
ON A RESTORED REEF

FACILITATION IS FUNDAMENTAL TO MARINE  
RESTORATION





# THANK YOU