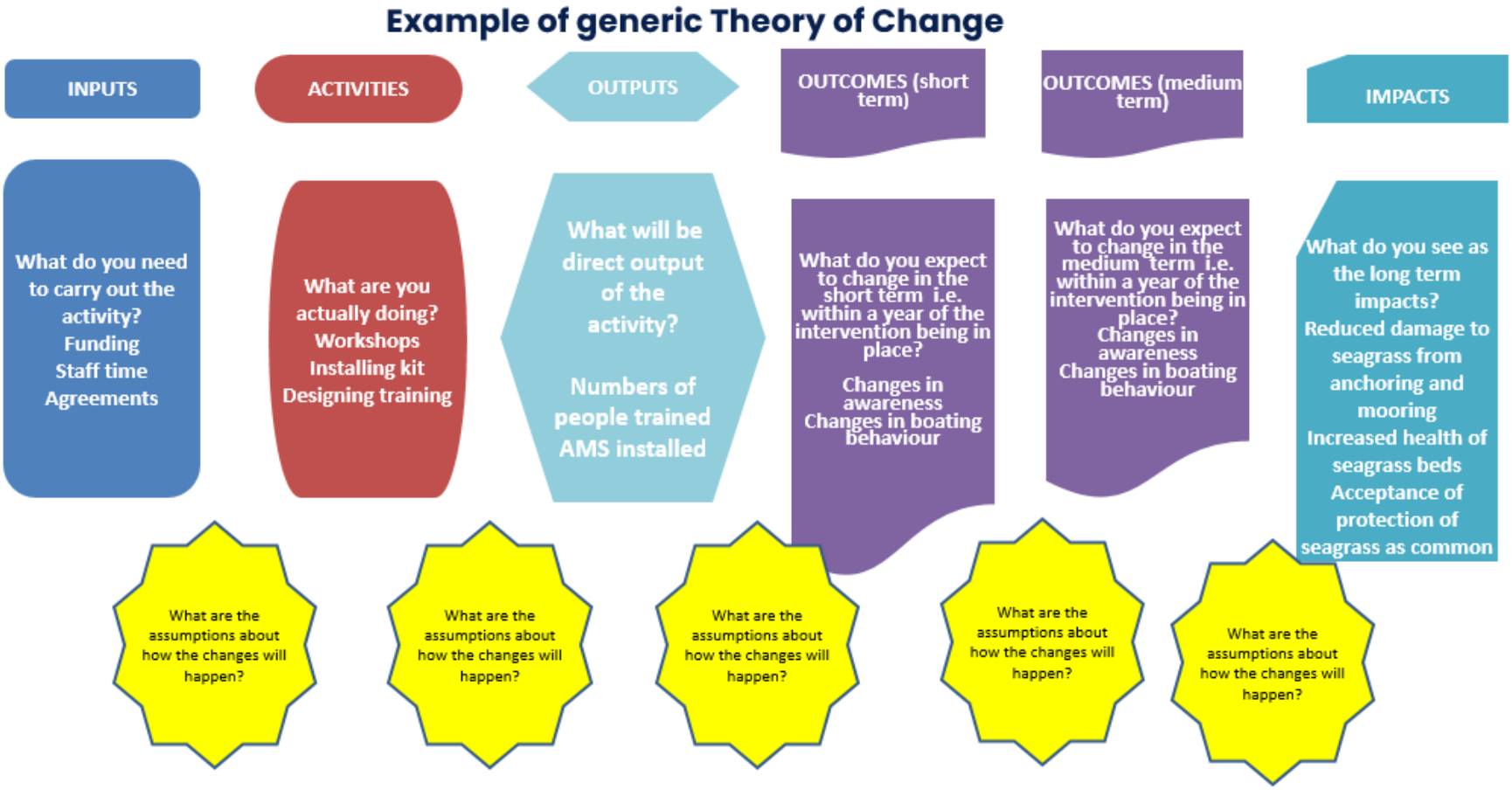
Lessons from evaluating behaviour change interventions

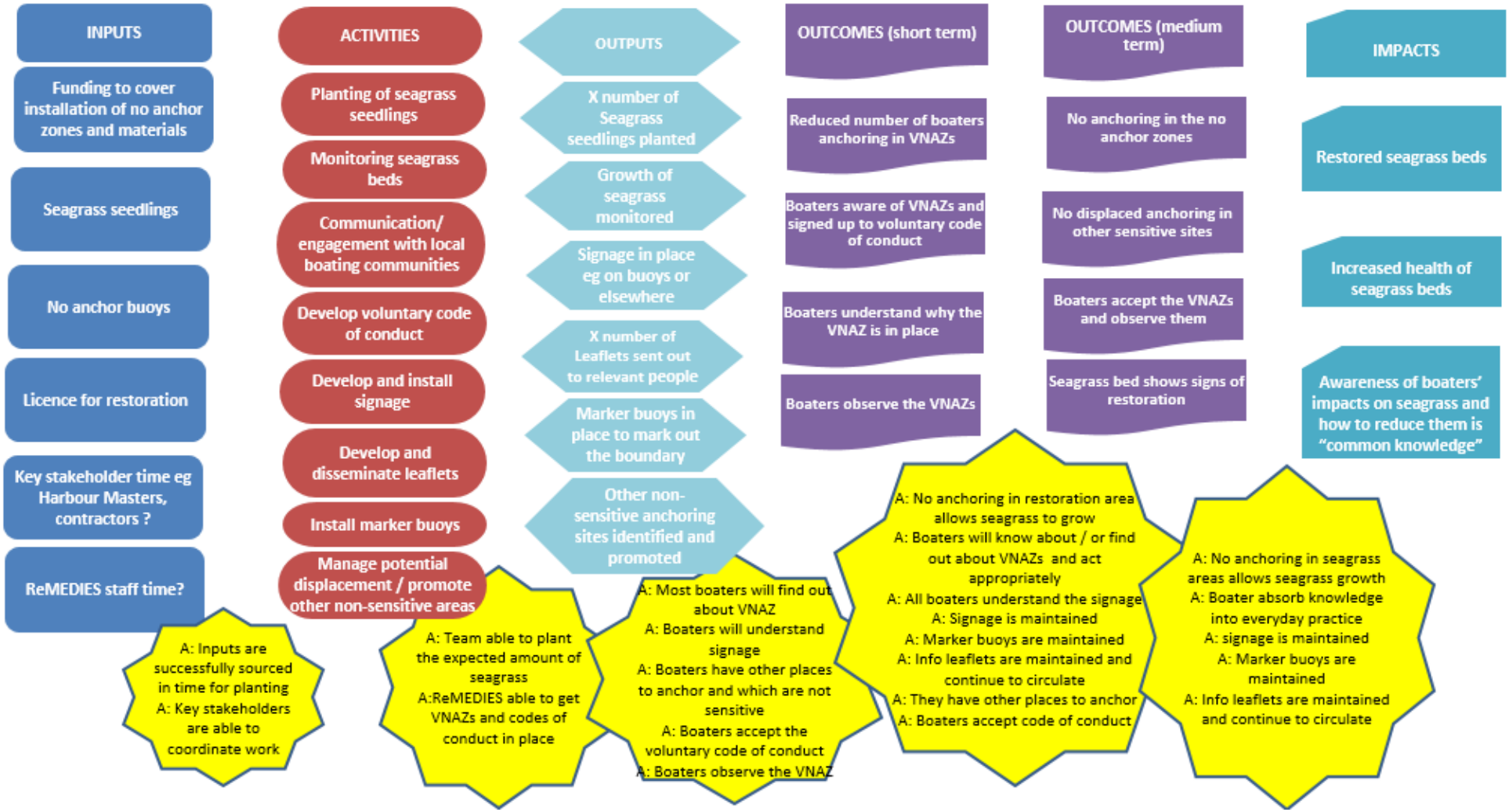
A case study of the LIFE Recreation ReMEDIES project

Supplementary information TIN227

Appendix 1 Theory of change diagrams (Credit: CEP)

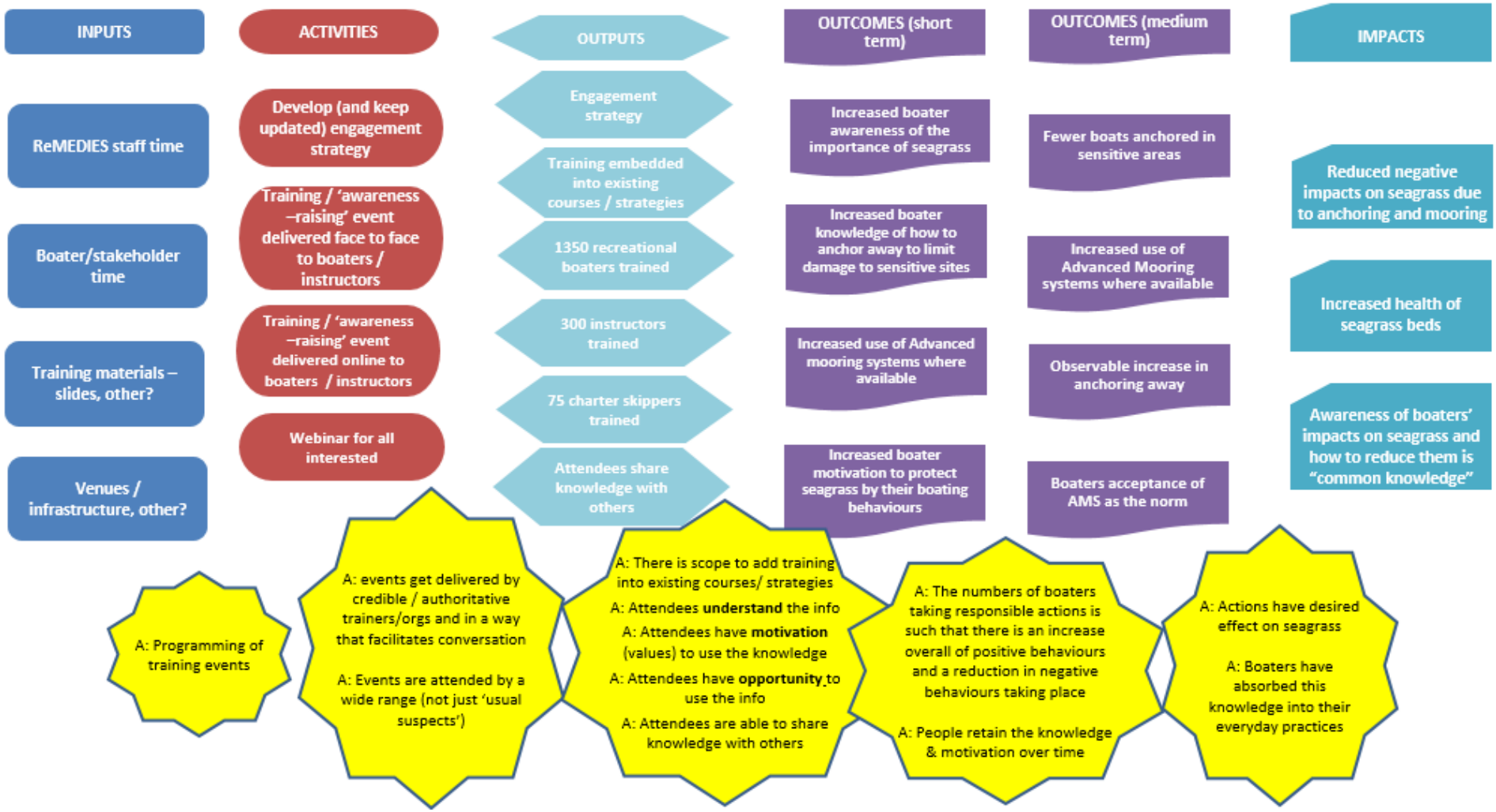


1. Restoration / putting in place no anchor zones - Theory of Change (ToC)



Note: A = answer to questions in 'Example of Generic Theory of Change'

2. Training for boaters and instructors - Theory of Change (ToC)

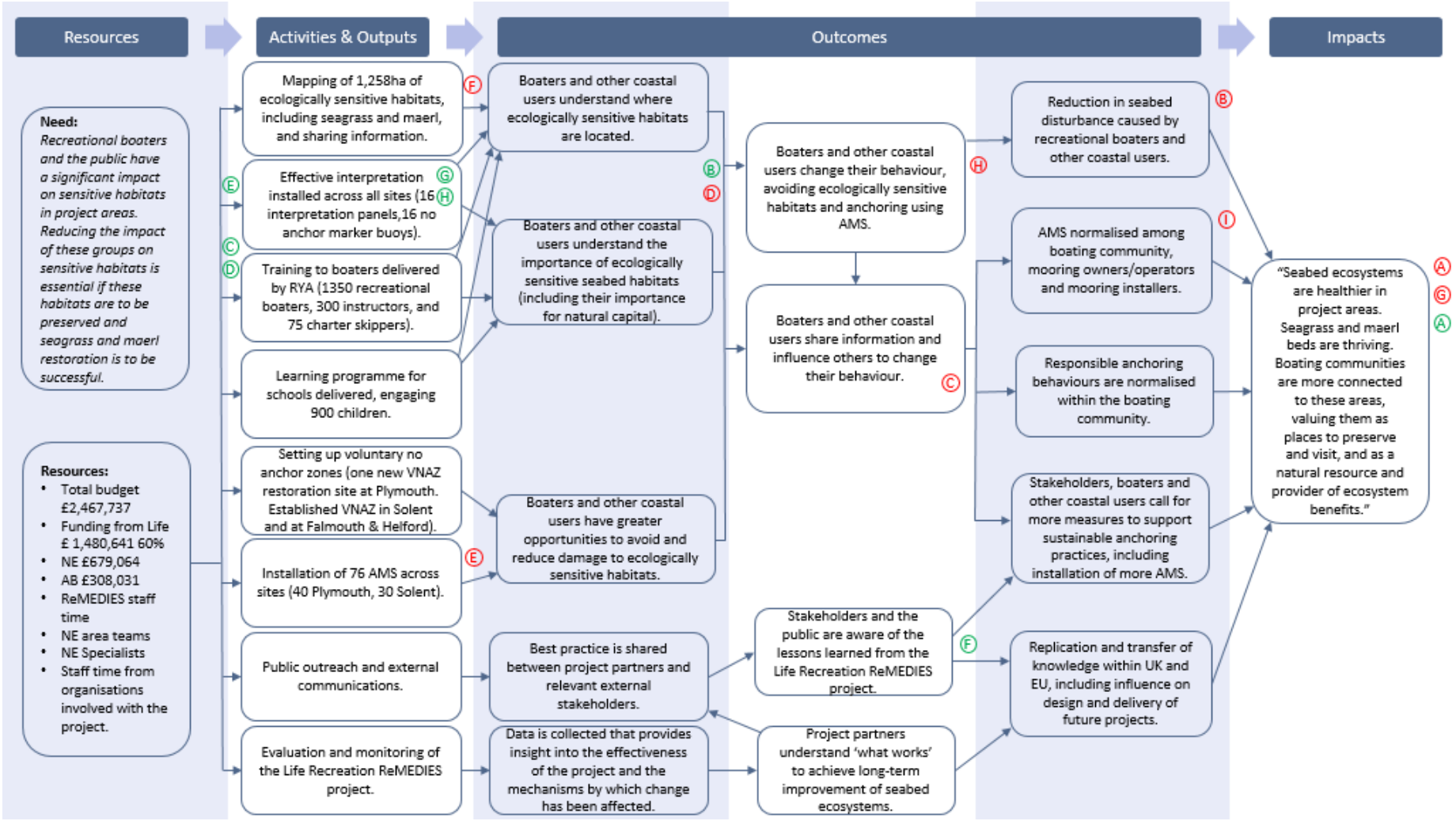


Note: A = answer to questions in 'Example of Generic Theory of Change'

3. Installing AMS - Theory of Change (ToC)

Note: A = answer to questions in 'Example of Generic Theory of Change'

Appendix 2. Whole project theory of change



Note: AB = Associated Beneficiaries (i.e. project partners)

Enablers

(things we/the intervention *can* control)

A. Seagrass planting will improve the extent of seagrass beds and support large-scale restoration.
B. Rising awareness of environmental/biodiversity and climate issues may make boaters and other coastal users more receptive to the project's message.
C. Existing stakeholders and new initiatives in project areas can amplify messages and ensure synergy between Life Recreation ReMEDIES rojects.
D. Consistent objectives and messaging between partners.
E. Project communications, including the project website.
F. The current higher profile of Blue Carbon and Nature-Based Solutions will increase buy in from the wider scientific and conservation community.
G. Installation of fencing to prevent wider mudflat disturbance.
H. Voluntary mud flat code of conduct

Assumptions and external factors

(things we/the intervention can't control)

A. Other pressures on sensitive seabed habitats may lead to worsening condition despite reduction in disturbance from recreational boaters and other coastal users.
B. Measures taken by the Life Recreation ReMEDIES project may lead to displacement of activities outside the project areas.
C. It is assumed that boaters and other coastal users will pass on information to other boaters and coastal users.
D. If the message is not delivered correctly, it may come across as 'patronising' or 'preaching' and therefore not lead to behaviour change
E. Scepticism about new technology may inhibit behaviour change.
F. Providing accurate long-term seagrass mapping will require buy in from digital chart software companies.
G. Low rate of success for re-planting may inhibit long-term improvement of habitat condition.
H. It is assumed that the intervention will lead to long-term changes in behaviour, and behaviours will not revert after the project intervention.
I. The cost of installing AMS may be prohibitive.

Appendix 3. Behaviour change evaluation plan

Intervention: Seagrass mapping

Relevant Behavioural Insight:	**Seagrass mapping will provide consistent, clear, actionable information to recreational boaters. This will increase the Opportunity that recreational boaters have to avoid sensitive seabed habitats due to having the information they require to change behaviour.**
Relevant for:	1. Essex Estuaries SAC; 2. Falmouth & Helford SAC; 3. Solent Maritime SAC; 4. Isles of Scilly SAC; 5. Plymouth Sound & Estuary SAC.
Indicator One:	(Increased) proportion of boaters identifying that they feel they have sufficient information about the location of seagrass via nautical charts.
Method of measurement:	Final project survey (delivered as a repeat of Collingwood survey conducted as a 'baseline').
Frequency of measurement:	At project end.
Responsibility:	Central project team.
Indicator Two:	Number of local stakeholders and project partners identifying that seagrass mapping has informed their activities (including details of the nature, scope and reach of these activities).
Method of measurement:	Interviews and focus groups with local stakeholders and project partners.
Frequency of measurement:	Annually.
Responsibility:	Local project officer.

Intervention: Installation of interpretation panel(s)

Relevant Behavioural Insight:	**Interpretation panels will provide coastal users with information about the importance and location of seagrass. This will increase the Opportunity and Motivation that recreational boaters have to take action to reduce damage to sensitive seabed habitats.**
Relevant for:	2. Essex Estuaries SAC; 3. Falmouth & Helford SAC; 4. Solent Maritime SAC; 6. Isles of Scilly SAC; 5. Plymouth Sound & Estuary SAC.
Indicator One:	Proportion of coastal users in areas with interpretation panels reporting that they have engaged with panels.
Method of measurement:	Fieldwork in areas where interpretation boards are installed.
Frequency of measurement:	Annually.
Responsibility:	Local project officer.
Indicator Two:	Number of coastal users reporting that the information panels have provided them with sufficient information about location of sensitive seabed habitats (Opportunity) to avoid damaging them.
Method of measurement:	Fieldwork in areas where interpretation boards are installed *and/or* survey distributed via QR codes on board .
Frequency of measurement:	Annually (fieldwork) *and/or* at point of use (QR codes).
Responsibility:	Local project officer.
Indicator Three:	Number of coastal users reporting that the information panels have provided them with sufficient information about importance of sensitive seabed habitats (Motivation).
Method of measurement:	Fieldwork in areas where interpretation boards are installed *and/or* survey distributed via QR codes on board.

Relevant Behavioural Insight:	**Interpretation panels will provide coastal users with information about the importance and location of seagrass. This will increase the Opportunity and Motivation that recreational boaters have to take action to reduce damage to sensitive seabed habitats.**
Frequency of measurement:	Annually (fieldwork) *and/or* at point of use (QR codes).
Responsibility:	Local project officer.
Indicator Four:	Number of coastal users reporting that they intend to change behaviour as a result of increased opportunity and motivation.
Method of measurement:	Fieldwork in areas where interpretation boards are installed *and/or* survey distributed via QR codes on board.
Frequency of measurement:	Annually (fieldwork) *and/or* at point of use (QR codes).
Responsibility:	Local project officer.

Intervention: Workshops and training of recreational coastal users

Relevant Behavioural Insight:	**Delivering training to coastal users on environmental best practice within and around sensitive habitats will provide boaters with increased Capability, Opportunity and Motivation to change behaviour.**
Relevant for:	1. Essex Estuaries SAC; 2. Falmouth & Helford SAC; 3. Solent Maritime SAC; 4. Isles of Scilly SAC; 5. Plymouth Sound & Estuary SAC.
Indicator One:	Number of training attendees reporting that they have increased capability to avoid or reduce damage to sensitive seabed habitats (such as through understanding how to follow the Green Blue Guide to Anchoring and Mooring) because of the training.

Relevant Behavioural Insight:	Delivering training to coastal users on environmental best practice within and around sensitive habitats will provide boaters with increased Capability, Opportunity and Motivation to change behaviour.
Method of measurement:	Survey of training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Two:	Number of training attendees reporting that they have increased opportunity (particularly social opportunity: the established norms around anchoring and mooring within the community of coastal users) to avoid or reduce damage to sensitive seabed habitats because of the training.
Method of measurement:	Survey of training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Three:	Number of training attendees reporting that they have increased motivation (due to increased understanding of the ecological importance of these habitats) to avoid or reduce damage to sensitive seabed habitats because of the training.
Method of measurement:	Survey of training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Four:	Number of training attendees reporting that they intend to change behaviour (e.g. observing the Green Guide to Anchoring and Mooring principles) as a result of the training.
Method of measurement:	Survey of training attendees.

Relevant Behavioural Insight:	**Delivering training to coastal users on environmental best practice within and around sensitive habitats will provide boaters with increased Capability, Opportunity and Motivation to change behaviour.**
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.

Intervention: Delivery of learning programme in schools

Relevant Behavioural Insight:	**Delivering a learning programme in schools will provide children with increased Capability (such as knowledge of location and how to avoid seagrass and maerl), Opportunity (particularly social opportunity in the form of social pressure) and Motivation (e.g. understanding of the importance of these habitats) to change behaviour.**
Relevant for:	1. Plymouth Sound & Estuary SAC. 2. Solent Maritime SAC; 3. Delivery organisations.
Indicator One:	Number of children reporting that they have increased capability to avoid or reduce damage to sensitive seabed habitats because they know more about where sensitive seabed habitats are.
Method of measurement:	Survey of attendees.
Frequency of measurement:	After each session.
Responsibility:	Convenor of session.
Indicator Two:	Number of children reporting that they have increased opportunity (particularly social opportunity: the established norms around coastal areas) to avoid or reduce damage to sensitive seabed habitats.

Relevant Behavioural Insight:	Delivering a learning programme in schools will provide children with increased Capability (such as knowledge of location and how to avoid seagrass and maerl), Opportunity (particularly social opportunity in the form of social pressure) and Motivation (e.g. understanding of the importance of these habitats) to change behaviour.
Method of measurement:	Survey of attendees.
Frequency of measurement:	After each session.
Responsibility:	Convenor of session.
Indicator Three:	Number of children reporting that they have increased motivation (due to increased understanding of the ecological importance of these habitats) to avoid or reduce damage to sensitive seabed habitats.
Method of measurement:	Survey of attendees.
Frequency of measurement:	After each session.
Responsibility:	Convenor of session.
Indicator Four:	Number of children reporting that they have or intend to avoid or reduce damage to sensitive seabed habitats.
Method of measurement:	Survey of attendees.
Frequency of measurement:	After each session.
Responsibility:	Convenor of session.

Intervention: Installation of VNAZ and voluntary codes of conduct

Relevant Behavioural Insight:	Creating VNAZs will help provide boaters with the Capability (through greater information about where sensitive seabed habitats are located) and Opportunity (particularly social opportunity: the established norms around anchoring and mooring within the community of coastal users) to change behaviour.
Relevant for:	1. Falmouth & Helford SAC; 2. Solent Maritime SAC; 4. Plymouth Sound & Estuary SAC; 5. ReMEDIES project manager.
Indicator One:	(Increased) proportion of boaters observing the VNAZ.
Method of measurement:	Boater observations.
Frequency of measurement:	Annually.
Responsibility:	Local project officer.
Indicator Two:	Number of workshop/training attendees reporting that they intend to observe the VNAZ.
Method of measurement:	Survey of workshop/training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Three:	(Increased) proportion of boaters reporting that they will observe a VNAZ.
Method of measurement:	Final project survey (delivered as a repeat of Collingwood survey conducted as a 'baseline').
Frequency of measurement:	At project end.
Responsibility:	ReMEDIES project manager.

Intervention: Installation of AMS

Relevant Behavioural Insight:	**Installing AMS will provide recreational boaters with increased Opportunity to change behaviour around mooring near sensitive seabed habitats.**
Relevant for:	1. Falmouth & Helford SAC; 2. Solent Maritime SAC; 4. Plymouth Sound & Estuaries SAC; 5. ReMEDIES project manager.
Indicator One:	(Increased) proportion of boaters using AMS.
Method of measurement:	Boater observations.
Frequency of measurement:	Annually.
Responsibility:	Local project officer.
Indicator Two:	Number of training attendees reporting that they have increased capability to use AMS because of training.
Method of measurement:	Survey of workshop/training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Three:	Number of workshop/training attendees reporting that they intend to use AMS where available.
Method of measurement:	Survey of workshop/training attendees.
Frequency of measurement:	After each training session.
Responsibility:	Convenor of training session.
Indicator Four:	(Increased) proportion of boaters reporting that they will use AMS where available.

Relevant Behavioural Insight:	Installing AMS will provide recreational boaters with increased Opportunity to change behaviour around mooring near sensitive seabed habitats.
Method of measurement:	Final project survey (delivered as a repeat of Collingwood survey conducted as a 'baseline').
Frequency of measurement:	At project end.
Responsibility:	ReMEDIES project manager.
Indicator Five:	Number of mooring owners/harbourmasters reporting that they would be willing to install additional AMS
Method of measurement:	Interviews with mooring owners/harbourmasters.
Frequency of measurement:	At project end.
Responsibility:	Local project officer.

Appendix 4. Example site specific behaviour change strategy (Plymouth Sound and Estuaries SAC)

Aim: Produce a behaviour change strategy which will be provide recommendations from the behaviour change project. These will aid delivery of various interventions planned for the Plymouth Sound and Estuaries SAC.

Intervention: *Advanced Mooring Systems (AMS)*
In the PS&E SAC site project will look to install:

- 10 new AMS
- 20 replacement AMS
- 10 Replacement AMS (OCT)

Outcomes:

1. Change recreational boaters' views on advanced mooring systems
2. Workshops with harbour authorities/boaters to discuss feedback

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
AMS installation to replace traditional moorings	Boat users unsure on use of AMS, impacts of using technology.	Provide information to boaters so they know location of current AMS moorings/markers, webinars/leaflets to explain why AMS has less impact upon seabed. Hold discussions with boaters about the science behind the ReMEDIES project.	Throughout project	NE, RYA, OCT, MCS, PCC, harbour authorities	Survey of mooring holders to record who might be willing to trial AMS. Follow up conversations with individuals. Provide information to boaters so they know location of current AMS moorings/markers, webinars/leaflets to explain why AMS has less impact upon seabed. Hold discussions with boaters about the science behind the ReMEDIES project. Once AMS installed ensure frequent contact with mooring holders (set up group) to discuss effectiveness of mooring and any issues.
Workshops/ Communication/engagement with local boating communities	Willingness to change behaviours, improve knowledge.	Working with boating communities, harbour authorities and moorings engineers to gauge usage/feedback on AMS.	Throughout project	RYA, NE,MCS PCC, OCT, harbour authorities	Survey of mooring holders to record who might be willing to trial AMS. Follow up conversations with individuals. Focus group, survey and/or interviews at end of project to reflect on ReMEDIES and AMS.

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
Install markers/buoys/clear signage	Willingness to change behaviours that impact seagrass.	Provide information to boaters so they know location of current AMS moorings/markers, webinars/leaflets to explain why AMS has less impact upon seabed. Hold discussions with boaters about the science behind the ReMEDIES project.	Throughout project	NE, PCC,OCT, harbour authorities	Survey of mooring holders to record who might be willing to trial AMS. Follow up conversations with individuals. Once AMS installed ensure frequent contact with mooring holders (set up group) to discuss effectiveness of mooring and any issues.

Intervention: *Voluntary No Anchor Zone*
The project will establish one voluntary no anchor zone around the seagrass restoration site Jennycliff Bay
Outcomes:

1. recreational boaters will abide by VNAZ encouraging seagrass restoration
2. boaters will share information amongst boating community to inform others of VNAZ and its purpose

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
Communication/engagement with local boating communities	General lack of knowledge about seagrass, and the impacts of boating behaviours amongst boaters. Some scepticism from some boaters about the impacts of boating on seagrass.	Workshops/local events to acknowledge different views, locations and restoration works discussed, carry out webinars.	Throughout project	NE, RYA, OCT,PCC,QHM,IFCA	Sequential questionnaires to record increase in awareness of seagrass importance.
Manage potential displacement/promote other non-sensitive areas	Boaters prefer anchoring for safety, unsure on seagrass locations.	Consider and signpost alternative places to safe anchor, training sessions/talks at clubs/marinas to encourage discussion about anchoring outside seagrass areas, webinar to discuss Notice to Mariners and provide background to restoration site	Throughout project	NE, RYA, PCC, QHM, IFCA	Observation of the no anchor zone within the bay to measure the anchoring activity within the demarcated area. Record the activity noted. Survey of local seafarers to determine if different anchoring area options are being utilised.

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
Install markers/buoys/	Lack of knowledge about seagrass, location of beds within the Plymouth Sound and Estuaries SAC, impacts from recreational/commercial activity.	Provide information to boaters so they know location of markers. Discuss with local stakeholders NAZ site selection.	In place from July 2021	NE, PCC, QHM, OCT	Observation of the no anchor zone within the bay to measure the anchoring activity within the demarcated area. Record the activity noted. Survey of local seafarers to determine if different anchoring area options are being utilised.
Clear signage	Lack of knowledge about seagrass and locations, impacts.	Provide information to boaters to ensure they are aware of the NAZ, reason it is specified.	In place from July 2021	NE, OCT, QHM, PCC	Observation of the no anchor zone within the bay to measure the anchoring activity within the demarcated area. Record the activity noted. Survey of local seafarers to determine if different anchoring area options are being utilised.

Intervention: *Codes of Conduct*
The project will undertake workshops to develop voluntary codes of conduct within identified areas of the site i.e. Cawsand Bay (avoiding swim area), Jennycliff Bay (voluntary no anchor zone), Yealm (anchoring techniques)
Outcomes:

1. recreational boaters will abide by voluntary no anchor zone encouraging reduction of impact to seagrass restoration bed
2. boaters will share information amongst boating community to inform others of the no anchor zone and its purpose
3. Boaters will share information about anchoring techniques which reduce impact to seagrass beds
4. Recreational boaters restrict boat movements within demarcated swim area and avoid anchoring within area.

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
Communication/engagement with local boating communities	Recreational users unclear on location of seagrass, there is willingness to change behaviours that damage seagrass.	Provide information to boaters and recreational sea users so they know location of current AMS moorings/markers, webinars/leaflets to explain why AMS has less impact upon seabed. Hold discussions with boaters about the science behind the ReMEDIES project. Ensure educational information is appropriate for target groups.	Throughout project	NE, PCC,OCT, harbour authorities	To be discussed.

Activity	Relevant behaviour insight	How behaviour insights will be applied to this activity	Timing	Who is responsible for doing this	Evaluation
Manage potential displacement/promote other non-sensitive areas	Boaters prefer anchoring for safety, unsure on seagrass locations.	Consider and signpost alternative places to safe anchor, training sessions/talks at clubs/marinas to encourage discussion about anchoring outside seagrass areas. Webinar to discuss Notice to Mariners and provide background to restoration site. Distribution of Green Guide to Anchoring and Mooring.		NE, RYA, PCC, QHM, IFCA	To be discussed.
Install interpretation panels	People interested in the project but unaware of the details.	Boards are placed in accessible places with interactive elements to build connection with stakeholders and the project. Ensure educational information is appropriate for target groups. Ensure panels are sited where the impacts are. Include QR code to engage further.	Summer 2022	NE, PCC,RYA	Monitor levels of engagement between this year and next year • Who are the audience? • What are their intentions? Monitor engagement with QR code.