

REGIONAL GROYNE FIELD REPORT AND CONDITION ENVIRONMENTAL OPERATIONS

1. Groyne types.

Council currently manages a number of individual groynes and groyne fields across the region. These assets are managed through a proactive inspection process with renewals undertaken as part of the coastal 10 year capital works program.

There are currently three different types of groynes managed with council. These groynes include rock, hybrid and GSC (geo-synthetic container). A rock groyne consists of layers of placed rock to form a semi-impermeable barrier and typically have a 50-70 year design life. These structures do require high capital expenditure initially to construct but conversely maintenance costs are minimal for the life of the structure, Figure 1 shows a rock groyne.



Figure 1: Rock type groyne (SCC, 2017)

The next type of structure is a hybrid structure of a GSC core with outer concrete mattress. This type of structures are only found within the Cotton Tree foreshore area and has proven successful despite some long term durability and maintenance issues.



Figure 2: Hybrid groyne (MSC, 1994)

The final groyne type is constructed purely from GSC's whereby geofabric is manufactured into a bag then filled with insitu or imported material. The filled bags are sealed and placed in an interlocking fashion to form a structure. The advantage of this method is rapid construction and lower initial construction costs. Figure 3 shows a GSC groyne.



Figure 3: GSC style groyne (SCC, 2017)

2. Groyne design and operation.

Groynes provide a special type of foreshore protection. They are typically constructed perpendicular to the beach profile creating a nearly impermeable structure which aims to trap any sediments caught in the long shore and littoral drift. Accretion on the upstream face of the structure is the desirable final result as the sediments settle out of suspension.

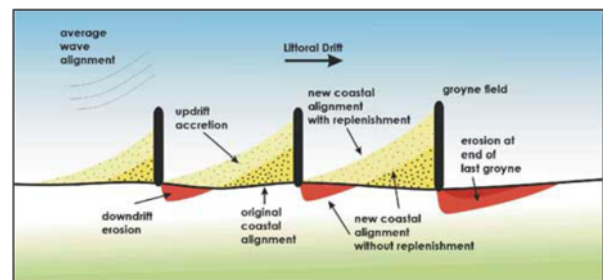


Figure 4: Groyne field diagram (DPAW, 2012)

3. Groyne locations and conditions.

The table below lists the groynes currently managed by Council, their condition, type and locations.

Table 1: Groyne locations and conditions

Location	Type	Condition	Number of groynes	Asset Management Plan/10 year Capital Program
Maroochy River Mouth Groyne Field	Geobags	Poor	4	Yes - funds allocated as part of the 10 year capital program
Maroochy River, Cotton Tree Groyne Field	Geobag and concrete (hybrid)	Fair	2	Yes - funds allocated as part of the 10 year capital program
Kings Beach –Dingle Avenue	Placed rock	Very good	1	No – asset renewal works performed in 16/17
Golden Beach -Short street	Placed rock	Fair	1	No - groyne performing as intended
Golden Beach -Gregory street	Placed rock	Very good	1	No – Emergency works and subsequent reconstruction performed in 16/17
Golden Beach -Wills avenue	Geobags currently	Poor	1	Yes - funds allocated as part of the 10 year capital program
Golden Beach -Jelicoe street	Placed rock	To be constructed	1 (new asst)	Yes- funds allocated as part of the 10 year capital program
Golden Beach -Groyne Field	Geobags	Various states, fair to poor, groynes located close to the main channel are prone to premature failure	11	Yes - funds allocated as part of the 10 year capital program
Golden Beach -Nelson street	Placed rock	Fair	1	No – Groyne performing as intended

Information current as at January 2018