
Revive
our Gulf

Photo by Dean Wright, NZME

Two glasses of muddy water from the Tāmaki Estuary

Plus one small Green Lipped Mussel.
It takes a while to adjust then…

In less than 15 minutes!

The seabed mussels would have filtered the water of the Firth in less than a day. Todays reefs would take more than a year to do that.


A single mussel can filter up to 350 litres of seawater daily
The seabed mussels would have filtered the water of the Firth in less than a day. Todays reefs would take more than a year to do that
Revive our Gulf

Increased biodiversity

4X invertebrate densities

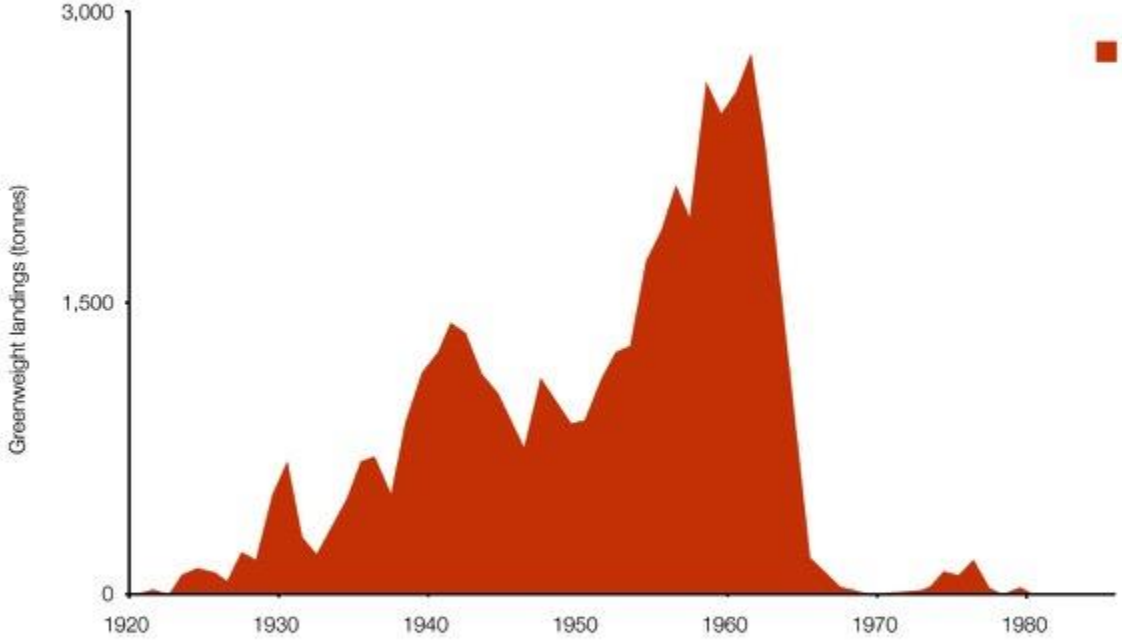
7X biomass

6x productivity

10X fish abundance

Revive our Gulf

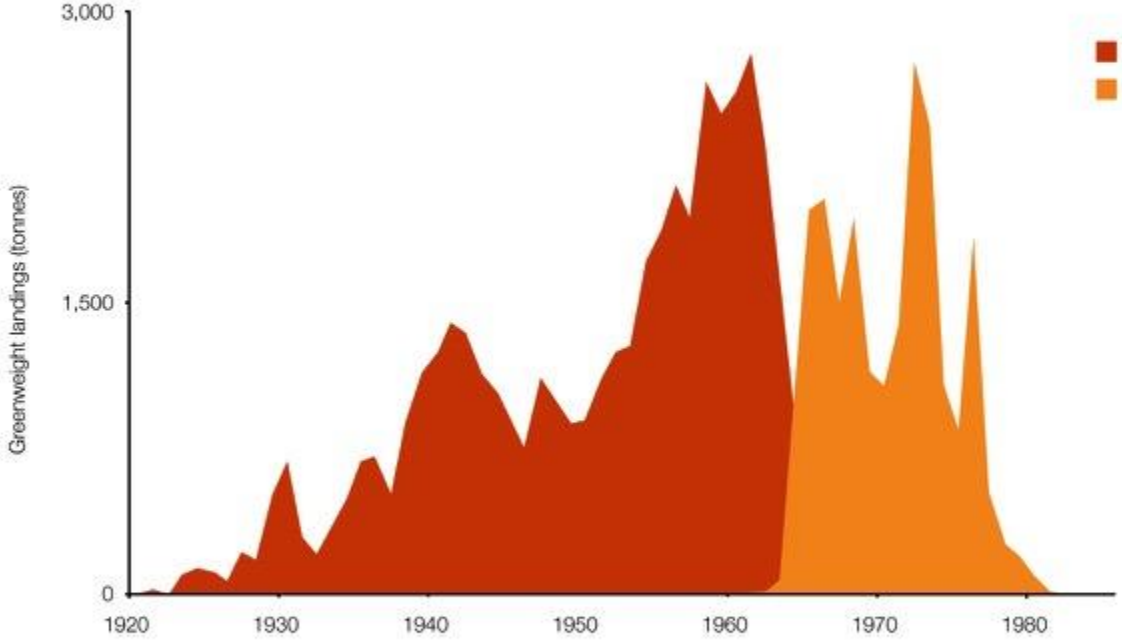
Regional green-lipped mussels fishery collapse



Data Paul (2012)

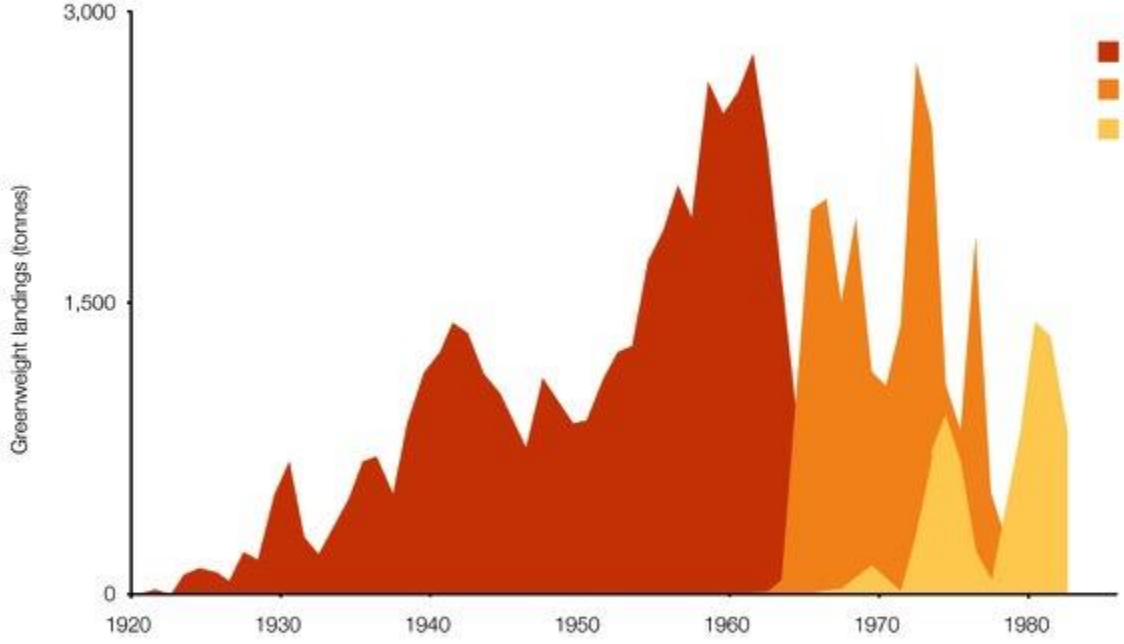
Sir George Grey Special Collections, Auckland Libraries, AWNS-19371110-49-4

Regional green-lipped mussels fishery collapse



Data Paul (2012)

Regional green-lipped mussels fishery collapse



Data Paul (2012)

Hauraki Gulf 2019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70 tonnes
East of
Waiheke

1. Mussels are harvested

2. Washed on the barge

3. Sorting - for market and for restoration

4. Transport

5. Deploy

Refining the restoration formula

THE UNIVERSITY OF AUCKLAND
FACULTY OF SCIENCE

Revive our Gulf


Mediterranean fanworm
Clubbed tunicate


80 tonnes in
Mahurangi Harbour
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Take a day or so to recover
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Knit together to form a carpet

1. Mussels are harvested

5. Trucked to freshwater tanks

9. Load them onto small barges

2. Double washed on the barge

6. Lifted into tanks for 90 minutes

10. Barged to restoration site

3. Unwanted species are removed by hand

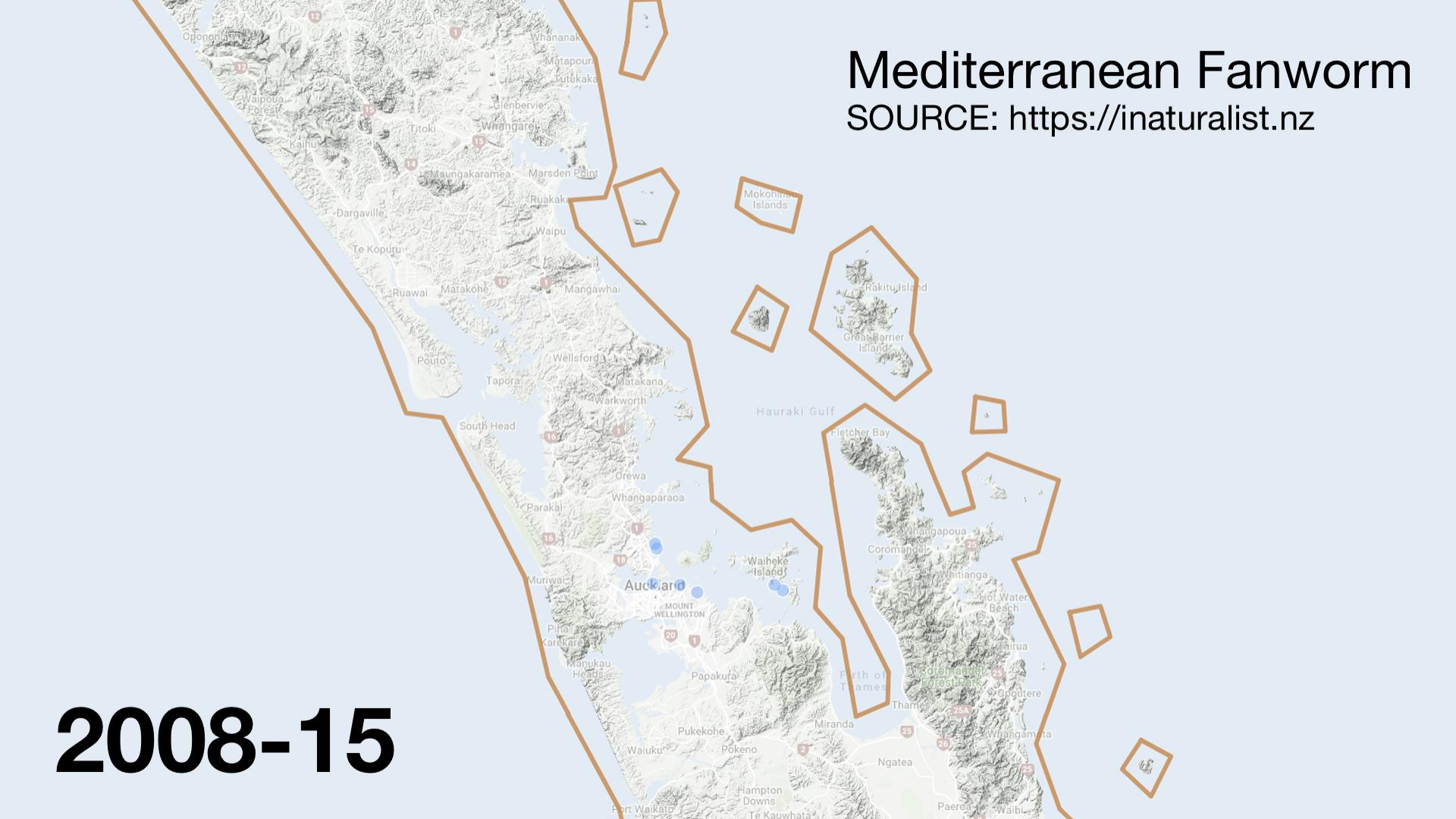
7. Insert a hose in each bag

11. Bags cut open (destroyed)

4. One tonne bags loaded on to truck

8. Load them back onto the truck

12. Hand shoveled overboard


Mediterranean Fanworm
SOURCE: https://inaturalist.nz
2008-15
Auckland
Hauraki Gulf
Waiheke Island
Great Barrier Island
Rakitu Island
Mokohinau Islands
Whangaparaoa
Orewa
Warkworth
Wellsford
Mangawhai
Matakohe
Ruawai
Dargaville
Te Kopuru
Waipu
Ruakaka
Marsden Point
Maungakaramea
Whangarei
Titoki
Kaihu
Glenbervie
Tutukaka
Matapouri
Whananaki
Opononi
Waipoua Forest
Pouto
Tapora
South Head
Parakai
Muriwai
Papakura
Pukekohe
Waiuku
Pokeno
Miranda
Thames
Coromandel
Hot Water Beach
Ngatea
Hampton Downs
Port Waikato
Te Kauwhata
Paeroa

"Restore historic ecosystem functionality of bivalve beds by 2040 to recover self-sustaining, expanding, filtering capacity and secondary production"

Tai Timu Tai Pari
Sea Change
Hauraki Gulf Marine Spatial Plan

"By 2017, identify and implement an effective solution to the current obstacles created by the Biosecurity Act which are impeding mussel reef restoration projects within the Hauraki Gulf Marine Park."

Tai Timu Tai Pari
Sea Change
Hauraki Gulf Marine Spatial Plan

What we've learnt

- Recruitment
- Size of mussel
- Predation and edge effect
- Increased biodiversity
- Depth and seabed characteristics

Highly likely to be important

- Bed density and size
- Mussel condition prior to deployment
- Deployment stress on mussels
- Predation
- Spat attachment to conspecifics
- Substrate selection

Nurseries for juvenile fish

Food for fish

Clearer water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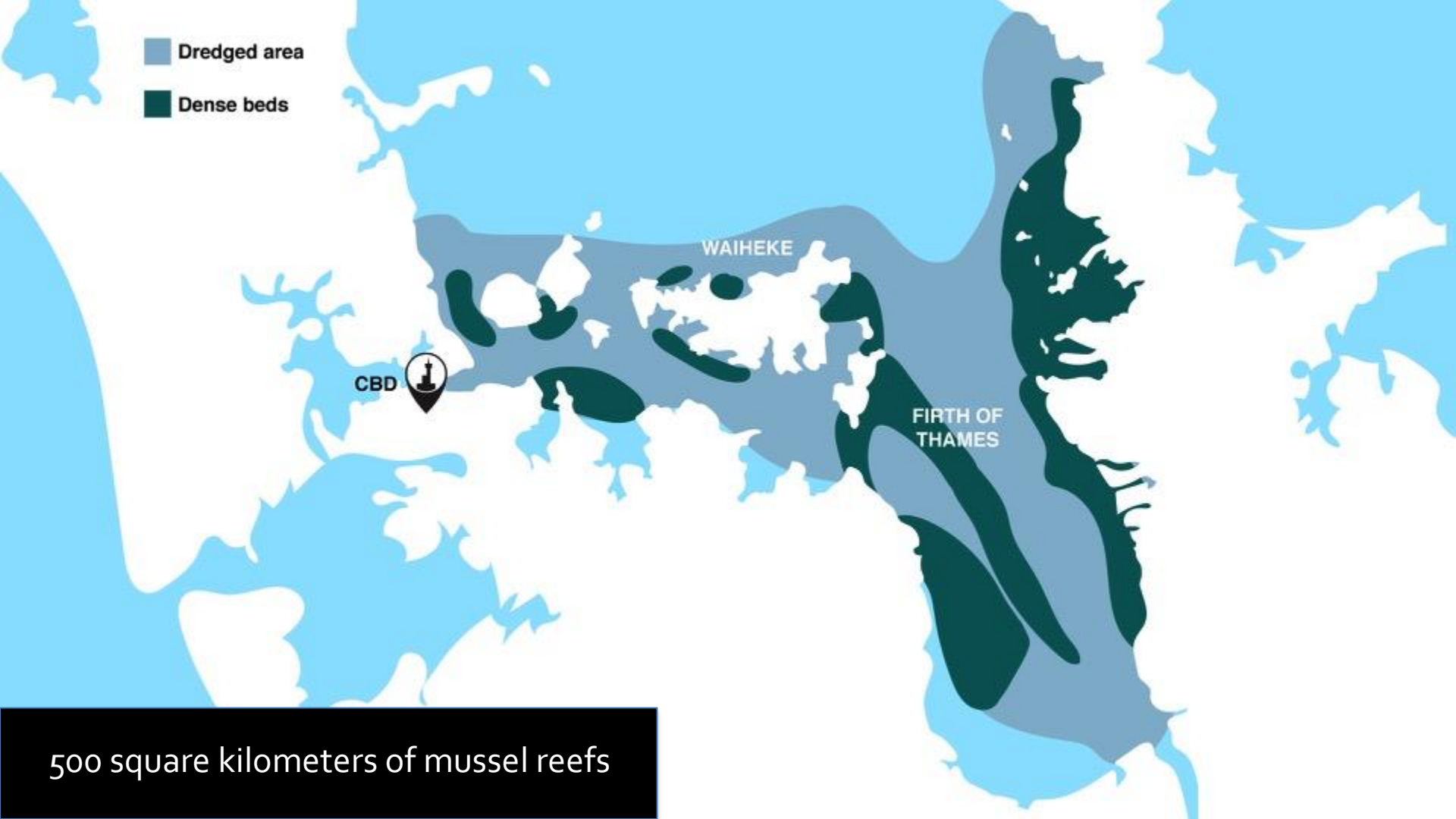
Extra stress on mussels = reduced ROI

Extra cost of restoration for everyone

Extra industry and volunteer goodwill

Ponui Island 2018



500 square kilometers of mussel reefs

It’s an offence under the Act to *"…knowingly communicate, cause to be communicated, release, or cause to be released, or otherwise spread any pest or unwanted organism…"* except for a scientific purpose, or as **permitted** by a Chief Technical Officer.

An exemption for the incidental movement of unwanted organisms - Sabella spallanzanii (Mediterranean fanworm), Styela clava (Clubbed Tunicate) and Undaria pinnatifida (Wakame/Undaria) - associated with mussels (live whole organism and shell) that have been sourced within the inner Hauraki Gulf Marine Park for transfer and deposition within the inner Park for the purposes of biogenic habitat restoration.

- Prior to deployment photographic evidence of unwanted organism abundance and distribution at each research site be provided to the Ministry.

- Movement of live whole organisms and shell provided by Hauraki Gulf Mussel Farms to restoration programmes will only be deposited south of the line from Cape Rodney to Cape Coleville.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