



Resilience & Women

Fostering holistic social-ecological
resilience to climate change

Kame Westerman



Ecological
vulnerability

blue ventures
discovery through research




Social vulnerability



Weste
Marin

A Reg
Conser

CO
UN
CLIMA
WA



BANQUE MONDIALE



REPUBLIQUE DE MADAGASCAR
Tanindrazana - Fahafahana - Fandrosoana



FONDS POUR L'ENVIRONNEMENT
MONDIAL

MINISTERE DE L'ENVIRONNEMENT, DES EAUX ET FORÊTS
DIRECTION GENERALE DE L'ENVIRONNEMENT




PROGRAMME D'ACTION
NATIONAL D'ADAPTATION AU
CHANGEMENT CLIMATIQUE

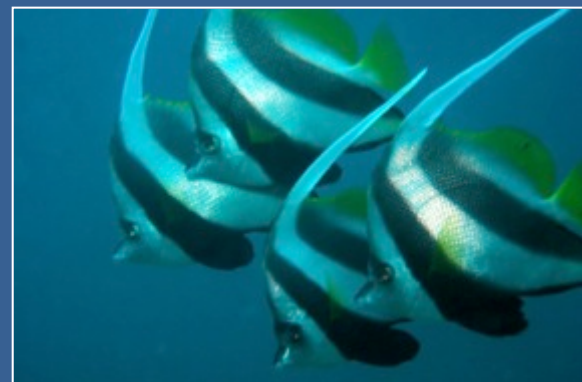





Little implementation on
the ground

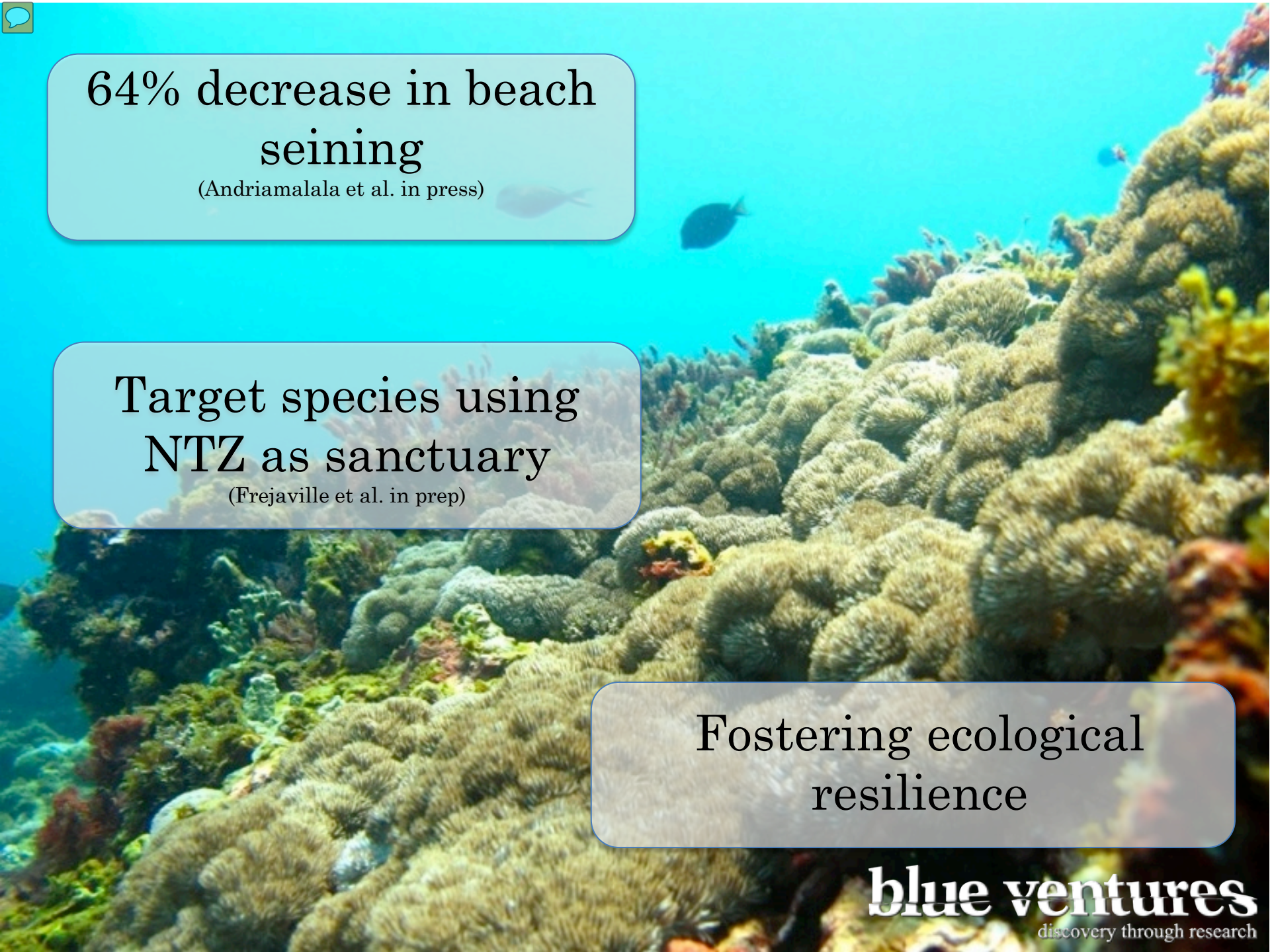


Ecological



Social





64% decrease in beach
seining

(Andriamalala et al. in press)

Target species using
NTZ as sanctuary

(Frejaville et al. in prep)

Fostering ecological
resilience



Fostering social resilience



Health

Diversified livelihoods

Education



Resilience and women



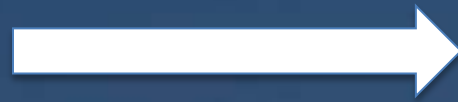


blue ventures
discovery through research



blue ventures
discovery through research

**Early
2000s**



**Subsistence to
market economy**

2004



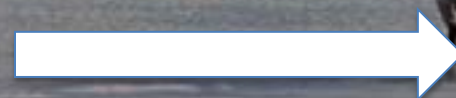
Pilot closure

2013



85 closures

**2004 –
2011**



**35,277 fisher trips
117,249 octopus**



Governance



Time is precious

blue ventures
discovery through research



Cultural barriers



129 men
139 women





86%

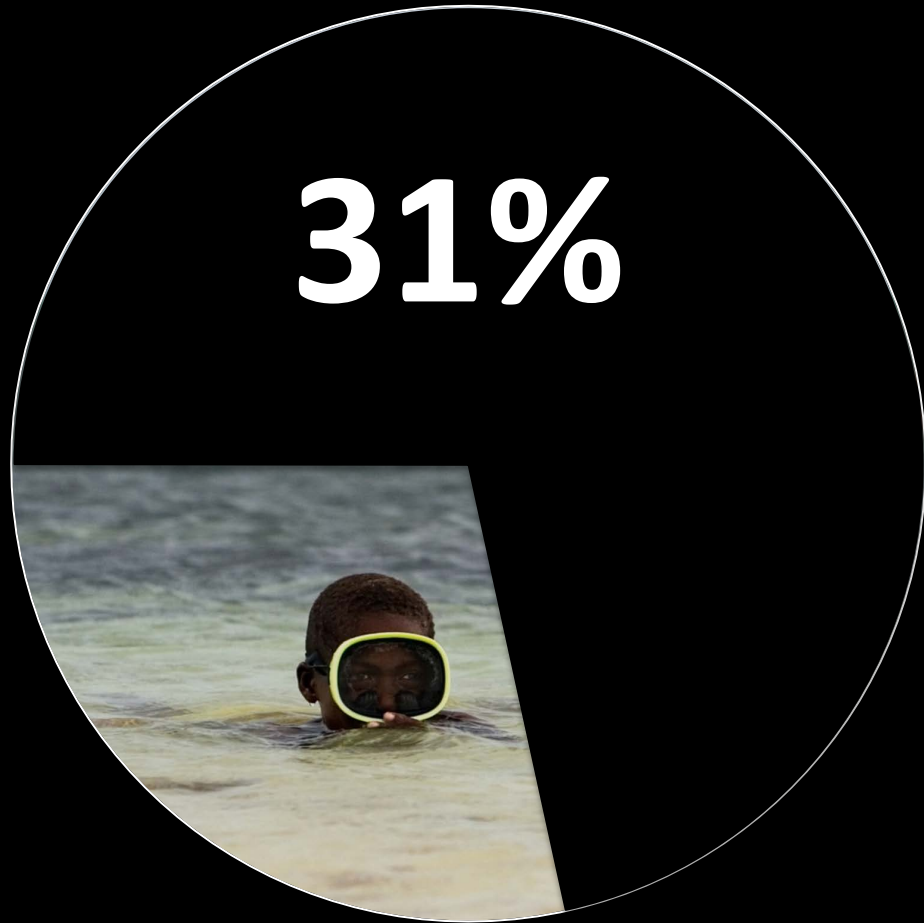




86%



31%





99%



Access to cash



A smiling man in a grey shirt holds a fish on a beach. He is surrounded by a traditional structure made of vertical wooden poles. Other people are visible in the background, and a blue sky is above.

Data results

WPUE: 3.13 kg/fisher/day (men)
2.58 kg/fisher/day (women)

Average Weight: 925 g (men)
820 g (women)

NPUE: women usually caught more

A background photograph showing a smiling man in a grey shirt holding a fish. He is standing in a traditional structure made of vertical wooden poles. Other people are partially visible in the background. The scene is outdoors under a clear blue sky.

Data results

Women predominated in 16/20 opening days

Women bring in 18% less income/day, but dominate total catch

WPUE for women reduced by 12% when opening is $\geq 1\text{m}$



Workshops

Day & time not coordinated
with women's needs

Men selectively enter the
fishery on opening




Solution

Separate meetings

Day and time that works for women

Hold meetings closer to villages



Westerman K & Benbow S (in press) The role of women in community-based small-scale fisheries management: the case of the southwest Madagascar octopus fishery. *Western Indian Ocean Journal of Marine Science*.

Misaotra Betsaka!