

**DESIGN IMPACT >>>>
>>>>>>>>>>>> MOVEMENT**

A Social
Initiative by



MANUAL FISH SKIN REMOVAL SYSTEM



Ecosystem Development Partners

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for community

THEME: SEAFOOD SUPPLY CHAIN & HYGIENE



MANUAL FISH SKIN REMOVAL SYSTEM

**STAKEHOLDER
SHIVKUMAR MAGADA**

Core Issue

Manual removal of fish skin is labor-intensive, slow, and unhygienic. Workers often perform the task with minimal protection or training, leading to inconsistent quality, increased risk of contamination, and reduced productivity. The lack of mechanization causes worker fatigue, and unhygienic handling surfaces increase bacterial risks, particularly in small-scale units.

Constraints

- Currently relies entirely on hand tools like knives and blades, which are inconsistent and slow.
- Requires significant human effort, leading to fatigue and reduced productivity.
- Repetitive knife use increases the chance of cuts and long-term musculoskeletal issues.
- Processing is often done on non-sanitized surfaces, without gloves or protective gear.

Context

In coastal fish markets and small processing units, the removal of fish skin is typically performed manually using knives or blades. This traditional practice lacks standardization and does not meet modern hygiene or food safety guidelines. Without proper tools or protective measures, there is a high risk of flesh damage, contamination, and injury to workers. Introducing low-cost mechanical tools and basic hygiene protocols could enhance efficiency, reduce contamination, and improve the quality of processed fish.

Groundwork to be considered

- What kind of mechanical or semi-automatic skin removal tools can be introduced at low cost?
- How to design ergonomic workstations that reduce fatigue and ensure clean surfaces?
- What training can be provided to ensure safe knife handling and hygiene during skinning?
- How to dispose of fish skin waste hygienically and sustainably?
- What PPE and sanitization protocols can be adopted to reduce contamination risk?
- Can a portable skinning solution be introduced for use in coastal or mobile processing sites?



Existing Systems

- Manual Skinning with Knives: The most common method, especially in small-scale coastal processing units. No automation or consistency in output.
- Basic Cutting Tables: Often made of wood or metal but not regularly sanitized, contributing to hygiene issues.
- No Waste Disposal System: Skins and trimmings are discarded in open areas, leading to foul smells and pest attraction.

Resources

<https://www.cift.res.in>

<https://www.fssai.gov.in>

<https://mpeda.gov.in>