Our innovation: fish kept cold from the fishing ground to the buyer

A cooling service, not equipment: fishers use our solar-charged PCM packs free when they sell to us, and the pilot tests whether premium sales cover the cost

How it works: one box, one set of packs, from boat to buyer · *answers: no cooling that fits on board; cold that lasts only hours*

1 · CHARGE
Off-grid solar hub
Solar cold store with battery backup near landing sites. Charges PCM packs and stores the catch.

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2 · FISH
PCM packs on board
Packs in an insulated box replace block ice: no meltwater, reusable, below 0 °C for 4 days [P].

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3 · LAND & SELL
Sell to us at the hub
Fishers sell eligible fish to us and use the packs free: no upfront cost, no new debt.

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4 · TRANSPORT
Same box, inland
The box and packs stay with the fish: no swap, no diesel refrigerated truck.

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5 · DELIVER
Premium-grade fish
Temperature record backs a premium grade set with buyers in Indonesia and Japan.

Used packs return to the hub to be recharged and reused

Data that pays · *answers: emissions and handling are not measured*

IoT temperature loggers — landing to delivery; live where connected → **Temperature record** — proof of how the fish was handled → **Premium grade** — buyers can verify quality and pay more

Energy meters at hubs — solar power used for cooling → **Ice and diesel avoided** — measured, not estimated → **Emission data** — for a future JCM assessment led by SAKIGAKE JAPAN

Business model · *answers: equipment without operators or buyers*

Free packs, no new debt
Fishers who sell to us use packs free, with no upfront cost and no loan for ice.

Premium margin pays
The pilot tests whether premium sales cover packs, hubs (built from early 2027) and fish purchases.

More income streams
Pack rental for inland traders and direct pack sales; carbon finance later.

Low-value catch, new products
Women's groups process it into food products that we link to buyers.

Pack cover: a self-managed system we run · our replacement reserve works as self-insurance

Covered by our system: wear and accidents
Normal wear and verified accidents at sea (storm, capsizing), paid from the replacement reserve we fund with a share of fish sales

Shared with the fisher: misuse or non-return
The fisher pays half, through small deductions from later fish sales that our system tracks; no upfront payment, loan or interest

Why it is better: existing solutions supply equipment at one point; ours is a service across the whole chain

Block ice
Melts within hours at sea; meltwater can carry contaminants; fishers often borrow to buy it.

Cooler boxes, cold storage & solar ice makers
Bring cooling closer to fishers, but solar equipment is hard to fit on small boats.

Refrigerated trucks
Run on diesel and are costly for rural routes.

Our service
Cold along the whole chain, sea to buyer, with no fuel or meltwater. Cooling is tied to a grade buyers can verify, and avoided emissions are measured. Fishers no longer borrow for ice; temperature records prove quality.

Who benefits

Small-scale fishers & households — main users

Inland traders — cooling without diesel refrigerated trucks

Women's groups — income from processing low-value species

Young people & fish handlers — trained to run and maintain the hubs

Buyers — fish with documented handling

Collectors who join — a new role as hub agents or buyers

KNMP cooperatives, as we scale · cooperatives in KKP's Kampung Nelayan Merah Putih fishing villages can add our packs and operating model to their existing cold storage

Pilot: Langkai, Spermonde Islands

Start with fishers free to sell to us: no debt to a collector, or debt that does not oblige them to sell to the lender. Expand to neighbouring communities, then invite collectors as hub agents or buyers.

Partners
ITB Mechanical & Aerospace Eng.: hub sizing, tropical validation
Japanese PCM partner: packs, local manufacturing as demand grows
SAKIGAKE JAPAN: JCM assessment

[P] PCM cold-pack tests by a Japanese partner in SAKIGAKE JAPAN's network (PCM performance.pdf); validation under tropical conditions by ITB is ongoing.