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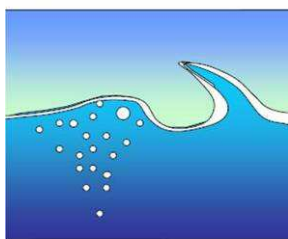
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Mon 27th to Wed 29th June 2011

Securing passenger transfer between cruise-ship & tender

by Jean-Marc Beynet

June 27th 2011

DAHET



making sea quiet



Biography

As a public works engineer with a PhD, Mr Beynet has over 30 years sound twofold expertise (studies and works) in the design and implementation of large-scale sea and river works, having worked in France and its overseas territories and abroad. For the last fifteen years, he has been specialising in studies that are specific to the development of luxury yachting and cruise activities. He has worked in particular on the ports in the Nice Côte d'Azur area (Cap d'Ail, Beaulieu-plaisance, St-Jean-Cap-Ferrat, St-Laurent du Var), in Cannes (Pierre Canto communal port and the Port of Cannes), the mega-yacht boat lift in La Ciotat, Bastia and Ajaccio Ports in Corsica, etc. He has also worked on overseas ports including Papeete in French Polynesia, St-Martin and Pointe-à-Pitre in the Caribbean and on the camber for luxury yachts in Port-Reunion. He is an associate member of UPEM (Union Professionnelle des Experts Maritimes) and IFM (Institut Français de la Mer). Extremely active in Research & Development, he has designed several innovative inventions, some of which have been patented (ATAP: Appontement temporairement auto-protégé pour créer des places pour la grande plaisance et les vedettes à passagers - automatic temporary protection of landing stages thanks to a self-inflatable wave-breaking device - and DAHET: Dispositif atténuateur de houle embarqué pour faciliter le transbordement de croisiéristes entre un navire et un tender, which allows passengers to disembark from a cruiser to a tender).

Abstract

The paper presents an innovation which allows passengers to transfer easily by tenders from cruise-ships or mega-yachts towards coastal tourist sites, even in case of swell generated by wind. Usually, when a cruise ship is anchored or at a mooring post, it faces the wind – and waves as well. However, it does not move much because of its size –whereas the tender is far more affected by the offshore agitation. The innovation is a device implementing a pneumatic breakwater between the incident waves and tenders. The air bubbles curtain is generated by a system linked to the cruise ship. This way, the movements of the two ships (cruise-ship and tender) are noticeably reduced, and passengers can be transferred in a safe manner. Energy expenditures are limited because – depending of the the target use (short calls) – there is no need to secure permanently a water surface, but only for a short periode corresponding to the time required to transfer passengers from the cruise ship to the tender. Moreover, the energy is already available on board of the cruise ship. The device is called DAHET, which means – in French – Dispositif Atténuateur de Houle Embarqué pour Transfert. This paper explain in detail how the device can be implemented between cruise ships and tenders.

1) General presentation

As cruise market and sea passengers transfers are developing worldwide, it is often difficult to set up new mooring infrastructure in existing docks of port cities.

Moreover, the erection of more wharfs is not always desirable or possible because it would "use" new coastal areas. The usual alternative, which is the landing of passengers by tenders, is therefore still topical; however, in some cases - moderate sea - it would be better to secure the operation.



In some cases, innovating and environment-friendly alternatives can be implemented to ease and secure transfer operations by landing passengers outside existing ports, as near as possible to the tourist sites or in areas where it is possible to build car parks.

If the sea is moderate outside ports, during the passenger transfer

operations between the cruise boat mooring off and the coasts, as well as between the tender and the coast, protection against swell can be temporarily provided by a pneumatic breakwater integrated either to the cruise ship (**DAHET**) or to the coastal wharf (**ATAP**):

DAHET = Swell attenuator device linked to a cruise ship to ease the transfer of passengers: It is a device linked to a cruise ship in order to attenuate locally the swell amplitude, alongside the hull, in the area of transfer of passengers by tenders.

ATAP = Landing pier temporarily self-protected against swell: It is a coastal structure (stable on-pile wharf) that can be implemented outside ports to allow the berthing of tenders and therefore, the landing of passengers.



DAHET + ATAP = continuity of service to secure the cruise passenger landing.

With the two concepts - **DAHET** and **ATAP** - a whole range of services is offered to cruise organizers to land passengers in improved security conditions and as near as possible to tourist sites, in a way that does not overload existing ports and that avoids the building of new ports or new wharves.

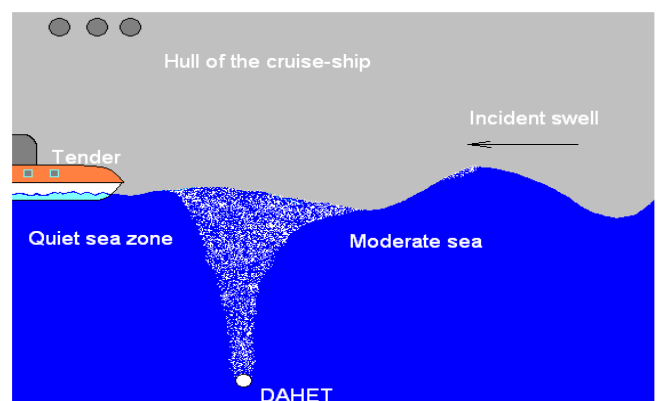
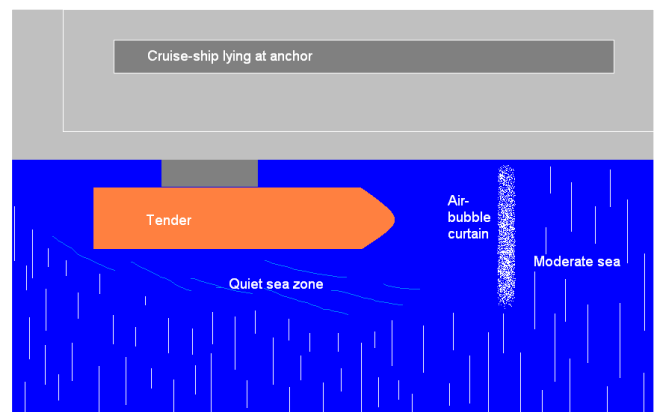
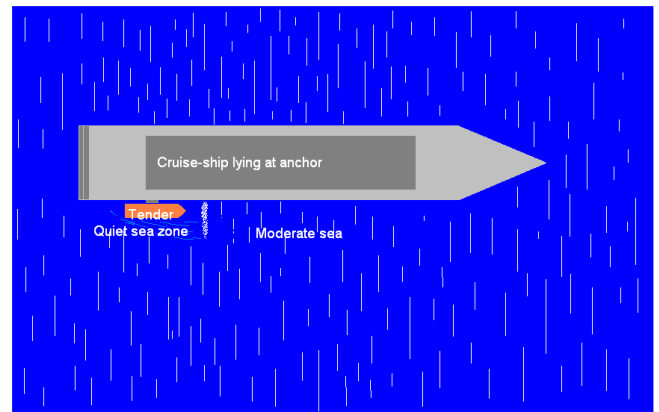
2) DAHET detailed presentation

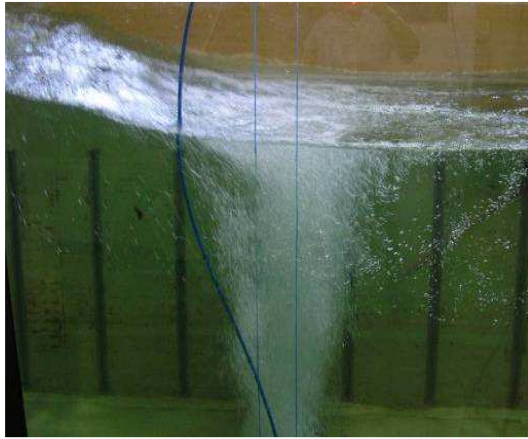
Usually, when a cruise ship is anchored or at a mooring post, it faces the wind - and waves as well. However it does not move much, because of its size, whereas the tender is far more affected by the offshore agitation.

The **DAHET** is an innovation allowing passengers to transfer easily by tenders from cruise-ships or mega-yachts towards coastal tourist sites, even in case of swell generated by wind.

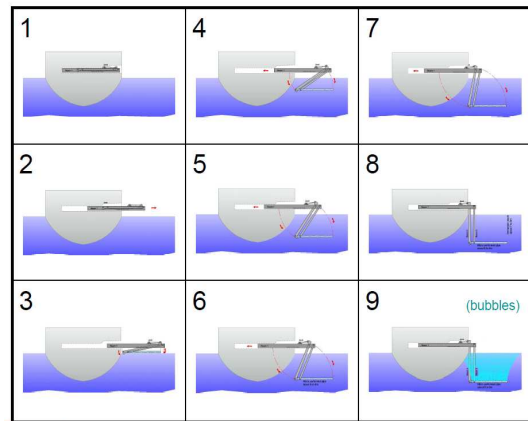
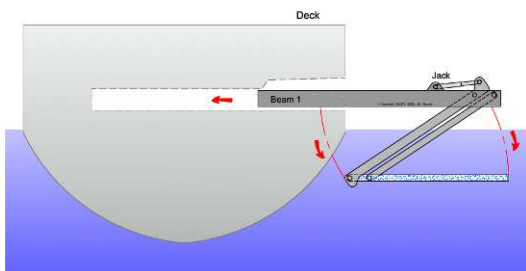


The **DAHET** is a device implementing a pneumatic breakwater between the incident waves and the tenders. This air bubbles curtain is generated by a system linked to the cruise ship. This way, the movements of the two ships (cruise-ship and tender) are noticeably reduced and passengers can be transferred in a safe manner.





For existing boats, the **DAHET** device can be fixed to the hull, above the waterline, and then unfolded and submerged when the boat is stationary. For cruise ships that are under design, the **DAHET** can be directly integrate to the bottom of the boat and therefore will be retractable during navigation.



The solution hereby described takes into account the free space between the ribs.

Moreover it is integrated above the water-line, which is more securing and easier for maintenance because grounding is no more necessary to intervene on the **DAHET**.

It has to be noted that these technical arrangements are convenient for mega-yachts and larger cruise-ships.

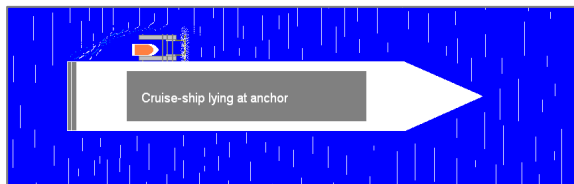
The design and the dimensioning of the **DAHET** can be adapted in accordance with the size of the ships.

The device is folded up in a box integrated in the hull above the water-line of the ship. When the boat is stationary at mooring outside a port, the lateral cover can be opened thanks to cylinders. Thanks to an endless screw, a rack or a telescopic jack, the whole device can be horizontally translated from 7 to 10 meters outside the hull of the boat.

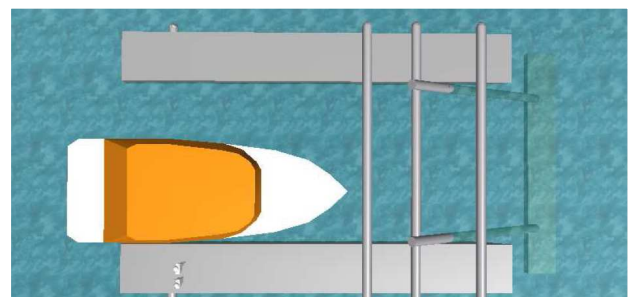
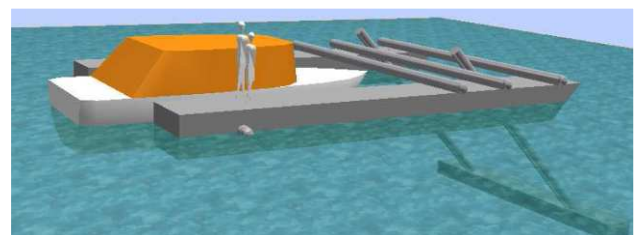
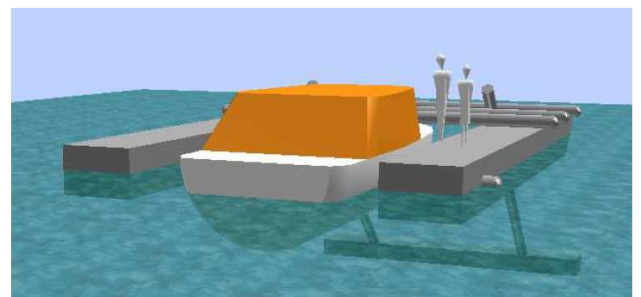
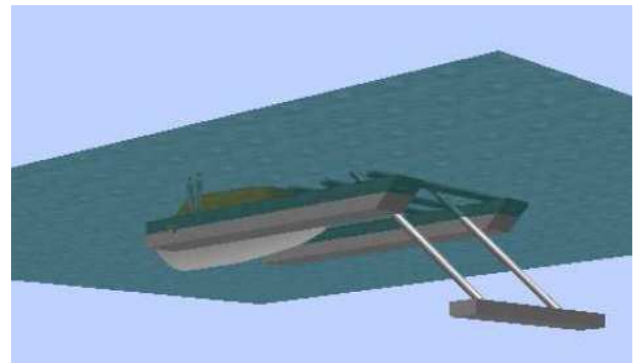
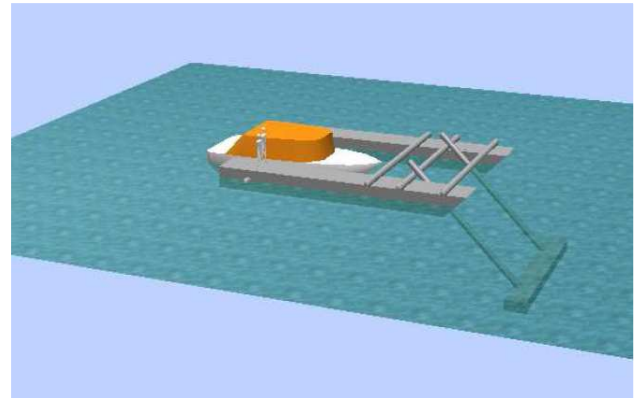
Energy expenditures are limited because depending of the target use (short calls), there is no need to secure permanently a water surface, but only for a short period corresponding to the time required to transfer passengers from the cruise ship to the tender.

Moreover, the energy needed even when running is small compared to the energy sources normally found on boards of the cruise ship.

For non-equipped ships, instead of equipping directly each ship, a variant is to implement the **DAHET** product on a specific floating dock moored at the cruise port.



Thus the dock can be used alternately by several ships anchored off the port of call, by being towed and moored alongside the cruise-ship, once it is moored by anchor or to mooring post.

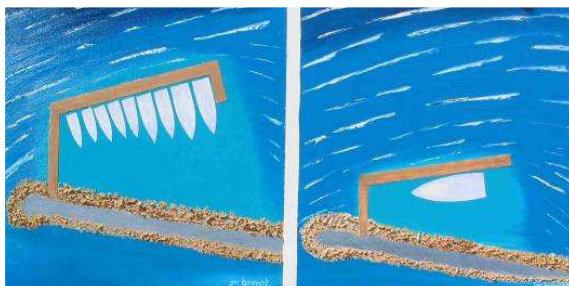


3) ATAP detailed presentation

ATAP is a functional and innovating device gathering both mooring and berthing functions. It is an on-pile wharf, which has a few impact on the sea bottom; it is unsensible to hydrodynamics and is able to be self protected against swell (if need be) thanks to an integrated pneumatic breakwater (fine bubbles curtain).

Such a structure is very convenient for about 40' to 150', medium-and-large sized yachts), during short calls, such as events, yacht-shows and prestige regatta, as well as for calls of passengers boats or row-boats for cruise passengers.

As it has little impact on the sea bottom, it is usually possible to implement it, even if posidonia meadows have developed on the site.



During summer, this structure is destined to host boats, to allow the landind of passengers (mooring and berthing functions) and to be self-protected against swell (protection

function), wind-sea in general (short swell).

During winter, the structure will not host boats and must be as unsensible as possible to hydrodynamics (swell) to avoid being damaged during storm episodes (long swell).



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