Wing on wing - Goosewinging

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Wing and wing,[1] Wing on wing,[2] Goosewinging[3] or Goosewinged,[4] is a term used to define, in a fore-and-aft-rigged sailboat, the way to navigate sailing directly downwind, with the mainsail and the foresail extended outwards on opposite sides of the boat, forming a 180º angle, to maximize the projected area of sail exposed to the wind. The jib is held out by the clew with a whisker pole,[5] to allow the capture of the maximum amount of wind on the chosen side, without being covered by the mainsail.[6]

Goosewinged sailing

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Goosewing sailing requires the use of two sails, a fore sail and a mainsail. It is used when sailing directly to leeward or very close to leeward. The helmsman has to watch the wind from behind carefully to avoid an involuntary "jibe". To secure the sails against an unplanned jibe, a "preventer"[7] may be used; This is a mechanical device that is led forward from the boom and secured so as to prevent the boom from swinging across the boat if the sail is temporarily backwinded.[8]The further forward the boom can be positioned, the lower the risk of unintended jibe.[9][10]

Alternatives
It may be possible to sail a broad reach, with occasional intentional jibes, which relieves the helmsman significantly, especially in rough seas, and can be faster because of better aerodynamics. Another alternative is to use a gennaker or a spinnaker for downwind courses.[11]

The position of the boom is decisive for the avoidance rules. If possible, the main boom should be left on the port side — otherwise there would be the possibility of having to give priority to other sailing ships, not only to those sailing closer to the wind, but just for the fact of having the boom on the port side.[12]

Running vs. close-hauled sailing
When sailing with the wind or running before the wind, the sails generate power primarily through drag (like a parachute) with the true wind directly from behind the sailing craft.[13] A sailing craft propelled dead downwind cannot attain a speed faster than the true wind.[11]

However, higher-performance sailing craft achieve a higher velocity made good downwind, by sailing on whatever broad reach is most efficient on that particular craft, and jibing as needed. The longer course is offset by the faster speed. For

instance, if a vessel sails alternately in the directions 45° from the downwind direction, it will sail ?2 (?1.41) times farther than it would if it sailed dead downwind — but as long as it can sail faster than 1.4 times the true wind velocity, the indirect route will let it travel faster.[14]

Craft running downwind increase power from the sails by increasing the total area presented to the following wind, sometimes by putting out specialized sails for that purpose, such as a spinnaker on a fore-and-aft rigged vessel,[15] making obsolete the described goosewinging technique with the jib to windward (opposite to the main sail).[13] In light winds, certain square-rigged vessels may set studding sails, a type of sail used to extend the central square sails outwards from the yardarms, to create a larger sail area.[16]

Gallery

Malay Penjajap goosewinged (lug sails)

Studding sails

Javanese Borobudur ship with tanja sails running before the wind (receiving wind from aft)

Palaris with pinisi sail

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